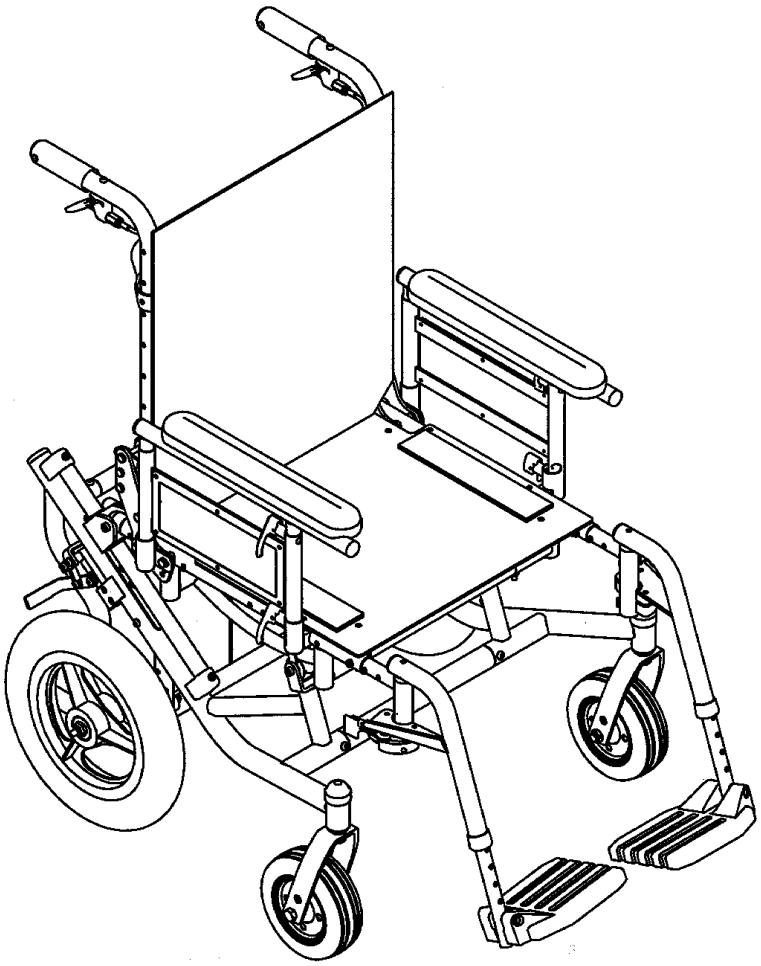
Owner's Operator And Maintenance Manual

Solara™
Solara™ Limited



DEALER: THIS MANUAL MUST BE GIVEN TO THE USER OF THE WHEELCHAIR.

USER: BEFORE USING THIS WHEELCHAIR, READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE.

For more information regarding Invacare products, parts, and services, please visit: www.invacare.com

INVACARE®

Yes, you can.™

WARNING

DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT A HEALTHCARE PROFESSIONAL, DEALER OR TECHNICAL PERSONNEL IF APPLICABLE BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.

THE INITIAL SET UP OF THIS WHEELCHAIR MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

PROCEDURES OTHER THAN THOSE DESCRIBED IN THIS MANUAL MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

TABLE OF CONTENTS

SPECIAL NOTES 5

LABEL LOCATIONS 6

SPECIFICATIONS 8

PROCEDURE 1 - GENERAL GUIDELINES 9
INFORMATION FOR HEALTHCARE PROFESSIONALS/ASSISTANTS 9
STABILITY - ALL MODELS 10
STABILITY - ALL MODELS EXCEPT RECLINERS 10
STABILITY - RECLINER MODELS ONLY 11
OPERATING INFORMATION 11
WEIGHT TRAINING 12
WEIGHT LIMITATION 12
SAFETY/HANDLING OF WHEELCHAIRS 13

PROCEDURE 2 - SAFETY INSPECTION 19
SAFETY INSPECTION CHECKLIST 19
TROUBLESHOOTING 20
MAINTENANCE 20

PROCEDURE 3 - TRANSPORTING 21
TRANSPORTING THE INVACARE SOLARA 21

PROCEDURE 4 - FRONT RIGGINGS 22
INSTALLING/REMOVING SWINGAWAY FOOTREST 22
ADJUSTING SWINGAWAY FOOTREST HEIGHT 23
ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES 24
COMPOSITE/ARTICULATING FOOTPLATE HEEL LOOP REPLACEMENT 25
INSTALLING/REMOVING ELEVATING LEGREST/CALFPAD ASSEMBLY 25
ADJUSTING THE ELEVATING LEGREST/CALFPAD ASSEMBLY 26

PROCEDURE 5 - ARMS 27
INSTALLING/REMOVING/ADJUSTING DUAL POINT ARMREST 27
USING/INSTALLING/ADJUSTING LOCKING CANTILEVER ARMS 29
USING/INSTALLING/ADJUSTING NON-LOCKING CANTILEVER ARMS 32
ARM PAD REPLACEMENT FOR CANTILEVER ARMS 34
INSTALLING/REMOVING T-ARMS 34
ADJUSTING THE T-ARMS 35
ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS 37

PROCEDURE 6 - BACK/SEAT 38
FOLDING/UNFOLDING BACK ASSEMBLY 38
INSTALLING/REMOVING THE STROLLER HANDLES 39
INSTALLING/REMOVING/ADJUSTING THE ADJUSTABLE ANGLE STROLLER HANDLES 40
INSTALLING/REPLACING SEAT POSITIONING STRAPS 42
INSTALLING/REPLACING CHEST POSITIONING STRAPS 43
INSTALLING/REPLACING THE BACK UPHOLSTERY 43
INSTALLING THE SEAT CUSHION 44

PROCEDURE 7 - TILT-IN-SPACE 45
ENGAGING TILT-IN-SPACE 45
ADJUSTING TRIGGER RELEASE CABLES 46
POSITIONING TILT LOCKING COLLARS 47

PROCEDURE 8 - WHEELS/FORKS 49
INSTALLING/REMOVING REAR WHEELS 49
ADJUSTING THE QUICK-RELEASE AXLE 50
SEAT-TO-FLOOR HEIGHT ADJUSTMENT 51
ADJUSTING FORKS 51

PROCEDURE 9 - WHEEL LOCKS/ANTI-TIPPERS 52
WHEEL LOCK ADJUSTMENT 52
USING THE WHEEL LOCKS 53
INSTALLING/ADJUSTING ANTI-TIPPERS 53

PROCEDURE 10 - RECLINER BACK OPTION 55
RECLINER OPERATION 55
REPLACING/BACK HEADREST UPHOLSTERY 57
ADJUSTING THE RECLINER CABLES 57
REPLACING THE RECLINER CABLES 58
REPLACING THE GAS CYLINDERS 60
ADJUSTING THE GAS CYLINDERS 62

PROCEDURE 11 - CONTRACTURE FOOTPLATE OPTION 64
INSTALLING THE CONTRACTURE FOOTPLATE ASSEMBLY 64
CONTRACTURE ASSEMBLY ANGLE ADJUSTMENT 67
USING THE OPTIONAL QUICK-RELEASE PIN 67
ANGLE ADJUSTMENT OF THE CONTRACTURE FOOTPLATE 68
CONTRACTURE FOOTPLATE DEPTH ADJUSTMENT 68
CONTRACTURE FOOTPLATE HEIGHT ADJUSTMENT 69
REPLACING THE CONTRACTURE FOOTPLATE HEEL LOOP 70

PROCEDURE 12 - TRANSPORT READY OPTION 71
COMPLIANCE INFORMATION 72
SECURING THE WHEELCHAIR TO THE VEHICLE 72
SECURING THE OCCUPANT 73

NOTES 78

LIMITED WARRANTY 79

SPECIAL NOTES

WARNING/CAUTION notices as used in this manual apply to hazards or unsafe practices which could result in personal injury or property damage.

NOTICE

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.

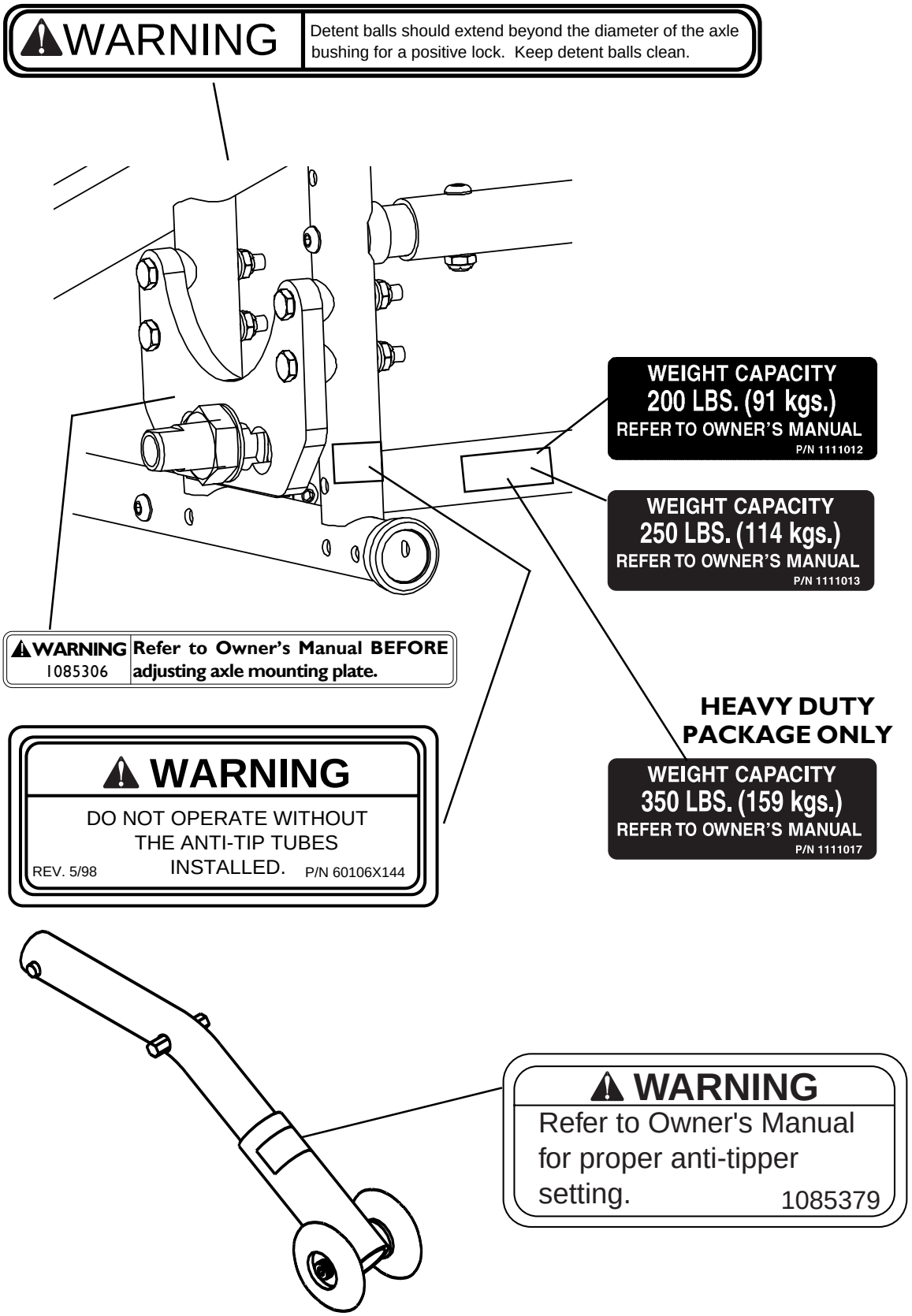
WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT POSITIONING STRAPS

Invacare recommends that wheelchair users NOT be transported in vehicles of any kind while in wheelchairs. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type.

It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry.

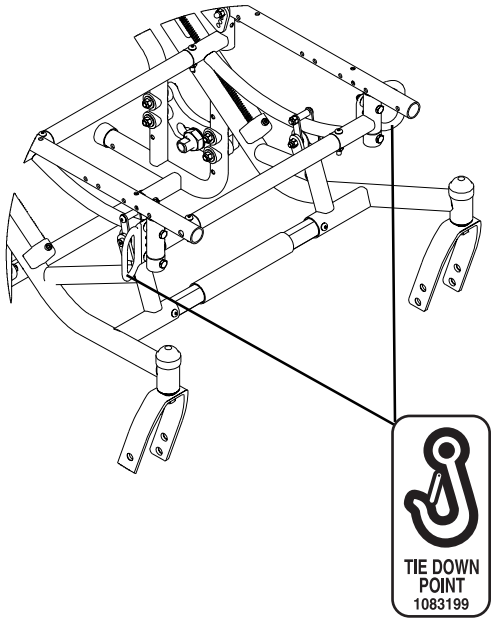
AS REGARDS RESTRAINTS - SEAT/CHEST POSITIONING STRAPS - IT IS THE OBLIGATION OF THE DME DEALER, THERAPISTS AND OTHER HEALTHCARE PROFESSIONALS TO DETERMINE IF A SEAT/CHEST POSITIONING STRAP IS REQUIRED TO ENSURE THE SAFE OPERATION OF THIS EQUIPMENT BY THE USER. SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM A WHEELCHAIR.

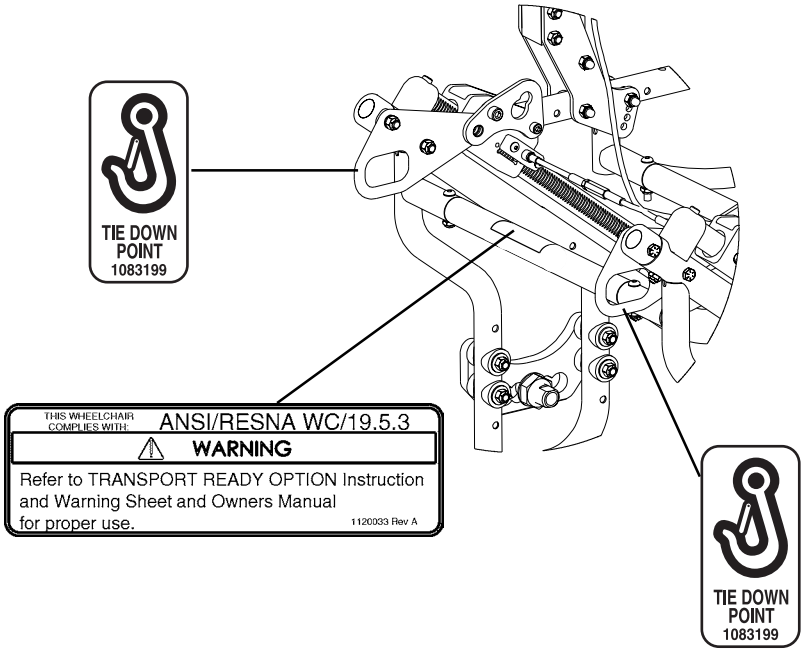
LABEL LOCATIONS



LABEL LOCATIONS

TRANSPORT READY OPTION ONLY





SPECIFICATIONS

INVACARE SOLARA	
Overall Width:	Seat Width + 8-1/4-inches (Example: 16-inch Wide Wheelchair = 24-1/4-inches Overall Width)
Overall Depth:	W/O Front Riggings Short Frame - 29-1/2-inches Medium Frame - 32-1/2-inches Long Frame - 34-1/2-inches
Overall Height:	* Seat-to-Floor Height + 21-inches (20-inch back canes) * Seat-to-Floor Height + 25-inches (24-inch back canes)
Shipping Weight:	57 lbs.
Anti-Tippers:	Standard
Footrest:	Swing-Away Footrest (**Standard**) Articulating Swing-Away Footrest (**Optional**)
Armrests:	Dual Point - Adjustable Height Dual Point Fixed Height - Desk Length Dual Point Fixed Height - Full Length Locking Cantilever Arms- Desk or Full length Non-locking Cantilever Arms Adjustable Height - T-Arms
Seat:	Optional
Seat Pan Color:	Black
Back:	Optional
Back Angle Adjustment:	90° to 120°
Rear Axle:	Quick-Release Fixed
Rear Wheels:	12-inches Pneumatic (**Standard**); 12-inch Pneumatic w/flat free (**Optional**); 20 and 22-inch Pneumatic, Urethane or Pneumatic w/flat free (**Optional**)
Handrims:	Aluminum Handrims
Caster Size:	6 x 2-inch w/ Precision Sealed Bearings (**Standard**) 8-inch w/ Precision Sealed Bearings (**Optional**) 6 x 1-inch w/ Precision Sealed Bearings (**Optional**)
Seat Width:	12 to 22-inches
Seat Depth:	Short Frame - 15-17-inches Medium Frame - 18-20-inches Long Frame - 20-22-inches
Back Height:	20 and 24-inches
Wheel Locks:	Push-to-Lock (**Standard**)
Tilt-In-Space:	Dual Cable Trigger Mechanism (**Standard**) - 45° of Tilt
Recliner Back:	Dual Cable Trigger Mechanism (**Optional**) - 0° to 180° of Tilt
Frame:	Steel

** NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed above. All heights are measured with properly inflated new tires. These heights can vary +1/4-inch due to tire wear.*

This Procedure Includes the Following:
Information For Healthcare Professionals/Assistants
Stability - All Models
Stability - All Models Except Recliners
Stability - Recliner Models ONLY
Operating Information
Weight Training
Weight Limitation
Safety/Handling of Wheelchairs

INFORMATION FOR HEALTHCARE PROFESSIONALS/ ASSISTANTS

WARNING

The Solara wheelchair MUST be operated by a healthcare professional or assistant when in ANY tilt position.

ANTERIOR (FORWARD) TILT

DO NOT operate the wheelchair when the seat frame is in the anterior (forward) tilt position (frame stops in the lower position and approximately 10° forward tilt). Serious bodily injury may occur to the patient and/or the assistant(s).

Anterior (forward) tilt is a feature of this wheelchair designed for the USE OF A HEALTHCARE PROFESSIONAL or ASSISTANT ONLY. Engagement of the anterior (forward) tilt must NEVER be performed by the wheelchair user. When anterior (forward) tilt is needed, it must ALWAYS be engaged by a HEALTHCARE PROFESSIONAL or ASSISTANT. Make sure the occupant of the wheelchair is properly positioned and always engage both wheel locks.

STABILITY - ALL MODELS

STABILITY WARNING

The back height, seat depth, back angle, seating system, tilt angle, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the eleven (11) may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

	Back Height	Seat Depth	Back Angle	Seating System	Tilt Angle	Caster Size	Caster Position	Wheel Size	Wheel Position	User Condition	Wheel Locks	Anti-Tippers	Locking Collar
Back Height	●	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	N/A
Seat Depth	✓	●	✓	✓	N/A	✓	✓	✓	✓	N/A	N/A	N/A	✓
Back Angle	✓	✓	●	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	✓
Seating System	✓	✓	✓	●	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A
Tilt Angle	N/A	N/A	✓	N/A	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
Caster Size	✓	N/A	✓	N/A	N/A	●	✓	✓	✓	N/A	✓	✓	✓
Caster Position	✓	N/A	✓	N/A	N/A	✓	●	✓	✓	N/A	✓	✓	✓
Wheel Size	✓	N/A	✓	N/A	N/A	✓	✓	●	✓	N/A	✓	✓	✓
Wheel Position	✓	N/A	✓	N/A	N/A	✓	✓	✓	●	N/A	✓	✓	✓
User Condition	✓	✓	✓	✓	✓	✓	✓	✓	✓	●	N/A	N/A	N/A
Seat Height	✓	N/A	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓

NOTE: When changes to the left hand column occur, follow across the chart and refer to the ✓ procedure to maintain the proper stability, safety and handling of the wheelchair.

ALWAYS make sure that the wheelchair is stable BEFORE using the tilt-in-space.

STABILITY - ALL MODELS EXCEPT RECLINERS

STABILITY WARNINGS

To maintain maximum stability, position the rear wheels in the most rearward position in the axle mounting plate. Moving the rear wheels to any of the other mounting positions causes the wheelchair to decrease in stability.

If moving the rear wheels to ANY forward position, ensure the wheelchair is stable BEFORE using.

ALWAYS ensure stability BEFORE using maximum amount of tilt-in-space or moving the rear wheels forward. TEST wheelchair BEFORE it is occupied by the end user to ensure safety.

STABILITY - RECLINER MODELS ONLY

STABILITY WARNING

Before using ANY recline position of this wheelchair, make sure the rear wheels are in the MOST REARWARD position in the axle mounting plate to maintain the stability of the wheelchair. DO NOT change the handling/maneuverability of the wheelchair by moving the rear wheels to ANY of the forward positions. Moving the rear wheels to ANY of the forward positions WILL change the center of gravity of the wheelchair, making the wheelchair less stable.

ALWAYS make sure that the wheelchair is stable both in the FULL RECLINED (back at 180°) position AND the FULL UPRIGHT (back at 90°) position BEFORE using the recliner option.

BEFORE using the recliner option, make sure the anti-tipper wheel assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor).

ALWAYS engage both wheel locks while reclining or inclining (reverse recline) the wheelchair.

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner option if only one (1) of the gas cylinders is operational or adjusted properly.

Make sure the patient is properly positioned in the wheelchair before reclining or inclining (reverse recline) to maintain maximum stability and safety.

When returning the occupant of the wheelchair to the full upright position, more body strength will be required for approximately the last twenty (20) degrees of incline (reverse recline). Make sure to use proper body mechanics (use your legs) or seek assistance to avoid injury.

Always return the back to the upright position before lifting the wheelchair.

OPERATING INFORMATION

GENERAL WARNINGS

Unless otherwise noted, all service and adjustments should be performed while the wheelchair is unoccupied.

To determine and establish your particular safety limits, practice bending, reaching and transferring activities in the presence of a qualified healthcare professional BEFORE attempting active use of the wheelchair.

Always wear your seat/chest positioning strap. Inasmuch as the SEAT/CHEST POSITIONING STRAP is an option on this wheelchair (you may order with or without the seat/chest positioning strap), Invacare strongly recommends ordering the seat/chest positioning strap as an additional safeguard for the wheelchair user.

Always check foam grips for looseness before using the wheelchair. If loose, contact a qualified technician for instructions.

The necessary back angle (90°, 100°, 110° or 120°) MUST be selected BEFORE repositioning the rear wheels forward.

DO NOT operate the tilt-in-space if the trigger release levers and cables are not properly adjusted to ensure that the tilt-in-space is locked in place when engaged.

DO NOT TRAVERSE, CLIMB or GO DOWN ramps or slopes GREATER than 9°.

NEVER leave the occupied wheelchair unattended at any time, especially on an incline.

DO NOT attempt to reach objects if you have to move forward in the seat.

GENERAL WARNINGS (CONTINUED)

DO NOT attempt to reach objects if you have to pick them up from the floor by reaching down between your knees.

DO NOT lean over the top of the back upholstery/seating system. This will change your center of gravity and may cause you to tip over.

DO NOT shift your weight or sitting position toward the direction you are reaching as wheelchair may tip over.

WHEEL LOCKS ARE NOT BRAKES. DO NOT attempt to stop a moving wheelchair with the wheel locks.

DO NOT tip the wheelchair onto the rear wheels without assistance.

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. When transferring to and from the wheelchair, **ALWAYS ENGAGE BOTH WHEEL LOCKS.**

DO NOT use wheelchair unless it has the proper tire pressure (p.s.i.). **DO NOT** overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. Recommended tire pressure is listed on the side wall of the tire.

DO NOT use **ANY** parts, accessories, or adapters other than those authorized by Invacare. Otherwise, the warranty is void.

DO NOT attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.

DO NOT stand on the frame of the wheelchair.

Anti-tippers **MUST BE** attached at all times.

DO NOT use the footplates as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position.

ALWAYS use the handrims for self-propulsion. Inasmuch as the **HANDRIMS** are an option on this wheelchair (you may order with or without the handrims), Invacare strongly recommends ordering the handrims as an additional safeguard for the wheelchair user.

DO NOT use the spreader bar for lifting or transporting the wheelchair. **DO NOT** use the spreader bar as a weight bearing support.

WEIGHT TRAINING

WARNING

Invacare **DOES NOT** recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have **NOT** been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall **NOT** be liable for bodily injury and the warranty is void.

WEIGHT LIMITATION

WARNING

Invacare Solara Limited wheelchairs have a weight limitation of 200 lbs. (91 kgs.). Invacare Solara wheelchairs have a weight limitation of 250 lbs. (114 kgs.). Invacare Solara wheelchairs with the Heavy Duty package have a weight limitation of 350 lbs. (159 kgs.).

SAFETY/HANDLING OF WHEELCHAIRS

"Safety and Handling" of the wheelchair requires the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers.

Use this information only as a "basic" guide. The techniques that are discussed on the following pages have been used successfully by many.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter, however ALL WARNINGS and CAUTIONS given in this manual MUST be followed. Techniques in this manual are a starting point for the new wheelchair user and assistant with "safety" as the most important consideration for all.

STABILITY AND BALANCE

WARNING

ALWAYS wear your seat/chest positioning strap. Inasmuch as the SEAT/CHEST POSITIONING STRAP is an option on this wheelchair (You may order with or without the Seat/Chest Positioning Strap), Invacare strongly recommends ordering the Seat/Chest Positioning Strap as an additional safeguard for the wheelchair user.

To assure stability and proper operation of your wheelchair, you must at all times maintain proper balance. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you do not move beyond the center of gravity.

Virtually all activities which involve movement in the wheelchair have an effect on the center of gravity. Invacare recommends using seat/chest positioning straps for additional safety while involved in activities that shift your weight.

DO NOT lean forward out of the wheelchair any further than the length of the armrests. Make sure the casters are pointing in the forward position whenever you lean forward. This can be achieved by advancing the wheelchair and then reversing it in a straight line.

The Invacare Solara wheelchair should be operated by an assistant when the wheelchair is in any tilted position.

COPING WITH EVERYDAY OBSTACLES

Coping with the irritation of everyday obstacles can be alleviated somewhat by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

A NOTE TO WHEELCHAIR ASSISTANTS

When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tipping the wheelchair or traversing curbs, or other impediments.

WARNING

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.

Also, be aware of detachable parts such as armrests or legrests. These must NEVER be used to move the wheelchair or as lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).

When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

PERCENTAGE OF WEIGHT DISTRIBUTION

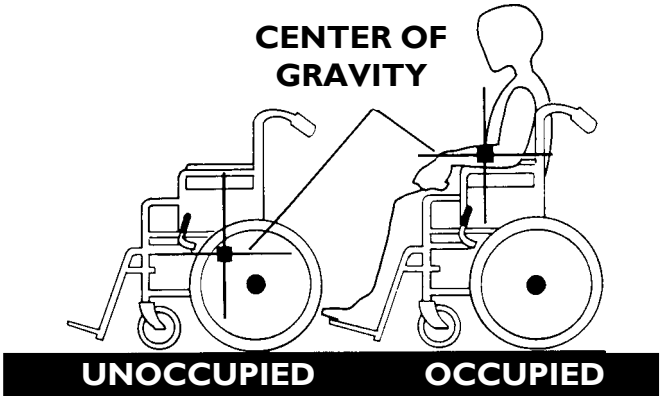
WARNING

DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

The back height, seat depth, back angle, seating system, tilt angle, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the eleven (11) may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

Many activities require the wheelchair owner to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, the center of gravity, and the weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional BEFORE attempting active use of the wheelchair.

Proper positioning is essential for your safety. When reaching, leaning, or bending forward, it is important to use the front casters as a tool to maintain stability and balance.

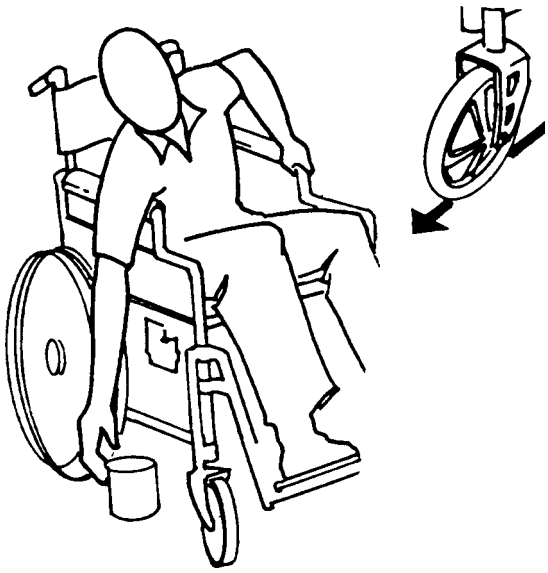


Reaching, Leaning and Bending - Forward.

WARNING

DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

Position the front casters so that they are extended as far forward as possible and engage wheel locks.

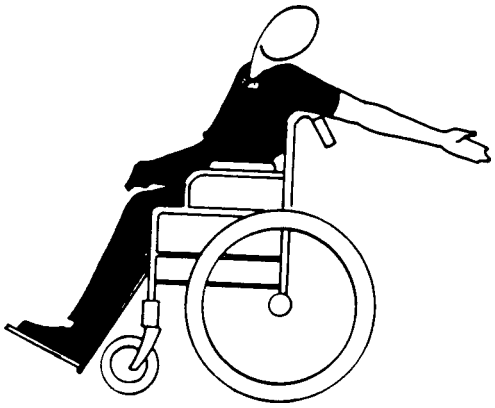


Reaching, Leaning - Backwards.

WARNING

DO NOT lean over the top of the back upholstery. This will change your center of gravity and may cause you to tip over.

Position wheelchair as close as possible to the desired object. Point front casters forward to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.



TIPPING

WARNING

DO NOT tip the wheelchair without assistance.

When tipping the wheelchair, an assistant should grasp the back of the wheelchair on a non-removable (non-detachable) part. Inform the wheelchair occupant before tipping the wheelchair and remind him/her to lean back. Be sure the occupant's feet and hands are clear of all wheels and/or pinch points.

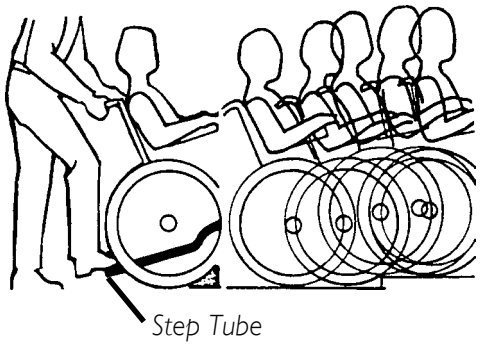
After mastering the techniques of tipping the wheelchair, use one (1) of the following methods to tackle curbs, short stairs, etc.

TIPPING - CURBS: METHOD 1 - WHEELCHAIR WITH STEP TUBES:

Place foot on the step tube and begin to tilt the wheelchair toward you. Apply a continuous downward motion until the balance point is achieved and the front casters clear the curb. At this point, the assistant will feel a difference in the weight distribution.

WARNING

When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.



METHOD 1 - WHEELCHAIR WITH STEP TUBES

Roll the wheelchair forward and slowly lower the front of the wheelchair in one continuous movement onto the sidewalk. Do not let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant. Push the wheelchair forward until the rear wheels roll up and over the curb.

TIPPING - CURBS: METHOD 2 - WHEELCHAIR WITHOUT STEP TUBE

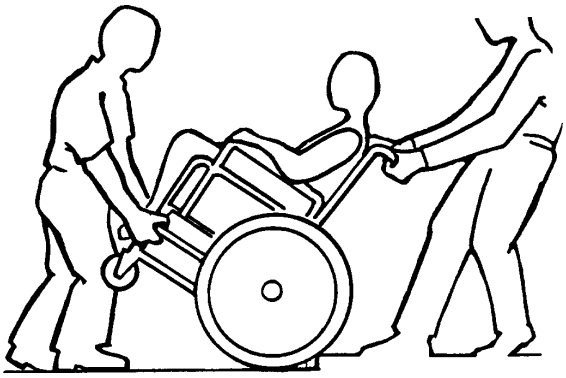
This method requires two (2) assistants. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.

Rotate the anti-tippers so the anti-tip wheels are pointing up. The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. The wheelchair should be tilted back to the balance point and, in one continuous upward movement, the rear wheels should be pulled up and over the curb. DO NOT return the front casters to the ground until the wheelchair has been pulled backward far enough for the front casters to clear the edge of the curb.

WARNING

When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.

Roll the wheelchair backward and **SLOWLY** lower the wheelchair in one continuous movement. DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant.



METHOD 2 - WHEELCHAIR WITHOUT STEP TUBE

STAIRWAYS

WARNING

ALWAYS wear your seat/chest positioning strap. Inasmuch as the SEAT/ CHEST POSITIONING STRAP is an option on this wheelchair (You may order with or without the Seat/Chest Positioning Strap), Invacare strongly recommends ordering the Seat/Chest Positioning Strap as an additional safeguard for the wheelchair user.

Do not attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.

Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two (2) assistants and making thorough preparations. Make sure to use ONLY secure, non-detachable parts for hand-held supports.

Follow this procedure for moving the wheelchair between floors when an elevator is NOT available:

1. If necessary, rotate the anti-tippers so the wheels are facing up.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.
3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one (1) foot on the next stair and repeats STEP 1.
4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. If necessary, rotate the anti-tippers so the wheels are facing down.

ESCALATORS? SORRY!

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

TRANSFERRING TO AND FROM OTHER SEATS

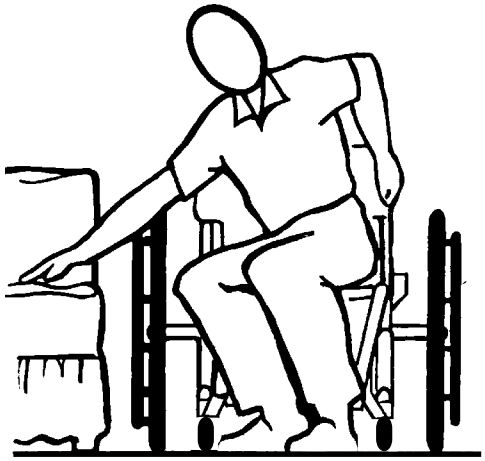
WARNING

BEFORE attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. Also be certain the wheel locks are engaged to help prevent the wheels from moving.

CAUTION

When transferring, position yourself as far back as possible in the seat. This will help prevent broken screws, damaged upholstery and the possibility of the wheelchair tipping forward.

NOTE: This activity may be performed independently provided you have adequate mobility and upper body strength.



Position the wheelchair as close as possible along side the seat to which you are transferring, with the front casters parallel to it. Remove or flip up the armrest. Engage wheel locks. Shift body weight into seat with transfer.

During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

This Procedure Includes the Following:
Safety Inspection Checklist
Troubleshooting
Maintenance/Transporting

SAFETY INSPECTION CHECKLIST

NOTE: Every six (6) months take your wheelchair to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

Initial adjustments should be made to suit personal body structure and preference. Thereafter follow these maintenance procedures:

ITEM	Initially	Weekly	Monthly	Periodically
GENERAL				
Wheelchair rolls straight (no excessive drag or pull to one side).	X	X		
CLOTHING GUARDS				
Inspect for bent or protruding metal.	X			X
Ensure all fasteners are secure.	X			X
ARMS - PROCEDURE 5				
Secure but easy to release.	X			X
ARMREST - PROCEDURE 5				
Inspect for rips in upholstery.	X			X
Base sits flush against arm tube.	X			X
FOAM HAND GRIPS				
Ensure hand rips are not loose.	X	X		
TRIGGER RELEASE LEVER AND CABLE - PROCEDURE 7				
Cables completely release and handles return when released.	X			X
REAR WHEELS - PROCEDURE 8				
Sealed bearings and axle nut tension correct.	X		X	X
No excessive side movement/binding when lifted from ground and spun.	X		X	
HANDRIMS				
Inspect for signs of rough edges or peeling finish.	X			X
FRONT CASTERS - PROCEDURE 8				
Inspect axle for proper tension by spinning caster; caster should come to a gradual stop.	X	X		
Adjust bearing system if wheel wobbles noticeably or binds to stop. **CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.**	X		X	
TIRES - PROCEDURE 8				
Inspect for flat spots and wear.	X		X	
If pneumatic tires, check for proper inflation. **CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.**	X	X		
WHEEL LOCKS - PROCEDURE 9				
Wheel locks do not interfere with tires when rolling.	X		X	
Wheel locks easy to engage.	X		X	
Pivot points free of wear or looseness.	X		X	
CLEANING				
Clean and wax all parts.				X
Clean upholstery and armrests.				X
Inspect axles are free from dirt, lint, etc.			X	
Inspect tilt slides and roller bearings are free from dirt, lint, etc.			X	

TROUBLESHOOTING

Chair Veers Right	Chair Veers Left	Sluggish Turn or Performance	Caster Flutter	Squeaks and Rattles	Looseness in Chair	SOLUTIONS
X	X	X				Check tires for correct and equal pressure.
		X	X	X	X	Check for loose nuts and bolts.
X	X		X			Check that both casters contact the ground at the same time.

MAINTENANCE

MAINTENANCE SAFETY PRECAUTIONS

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

CAUTION

DO NOT over tighten hardware attaching to the frame. This could cause damage to the frame tubing.

SUGGESTED MAINTENANCE PROCEDURES

1. Keep quick-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to ADJUSTING THE QUICK-RELEASE AXLE in PROCEDURE 8 of this manual.

WARNING

DO NOT use WD-40®, 3-in-1 oil®, or other penetrating lubricants on quick-release axles. Otherwise, binding and/or damage to the wheelchair may occur.

2. Clean quick-release axles once (1) a week with a Teflon® lubricant.

WARNING

DO NOT use the wheelchair unless it has the proper tire pressure (p.s.i.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.

3. If tires are pneumatic, recommended tire pressures will be listed on the side wall of the tires.
4. Periodically adjust wheel locks in correlation to tire wear. Refer to WHEEL LOCK ADJUSTMENT in PROCEDURE 9 of this manual.
5. Make sure that ALL bolts are tight before operating wheelchair.

CAUTION

As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.

6. The wheels and tires should be checked periodically for cracks and wear, and should be replaced.
7. Keep tilt slides and roller bearings free of dirt and lint to ensure proper operation of the tilt mechanism.

This Procedure Includes the Following:
Transporting the Invacare Solara

TRANSPORTING THE INVACARE SOLARA

1. Remove the seating system. Refer to the seating system Owner's Manual for installation and removal of the seating system.
2. Remove the footrests (PROCEDURE 4).
3. Remove the rear wheels (PROCEDURE 8).
4. Remove the armrests (PROCEDURE 5).
5. Remove the stroller handle (if applicable) (PROCEDURE 6).
6. Pull back release cord and fold the back towards the front of the wheelchair (PROCEDURE 6).

This Procedure Includes the Following:
Installing/Removing Swingaway Footrest
Adjusting Swingaway Footrest Height
Adjusting Adjustable Angle Flip-up Footplates
Composite/Articulating Footplate Heel Loop Replacement
Installing/Removing Elevating Legrest/Calfpad Assembly
Adjusting the Elevating Legrest/Calfpad Assembly

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

INSTALLING/REMOVING SWINGAWAY FOOTREST (FIGURE 1)

INSTALLING

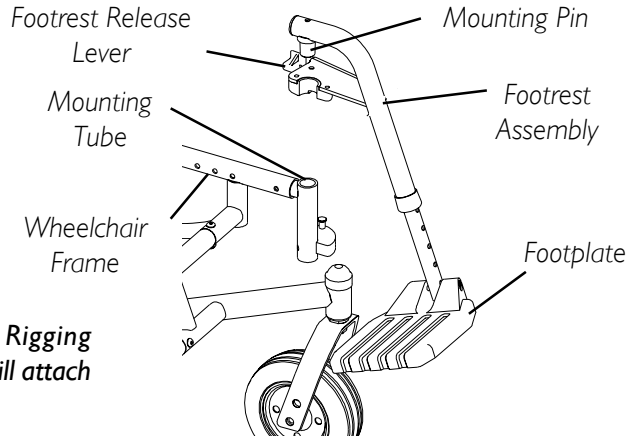
1. Turn the footrest to the side (open footplate is perpendicular to the wheelchair).
2. Insert the footrest assembly mounting pin into the mounting tube of the wheelchair frame.
3. Rotate the footrest towards the inside of the wheelchair until it locks into place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for the other footrest assembly.
5. If necessary, adjust the footrest height. Refer to ADJUSTING SWINGAWAY FOOTREST HEIGHT in this procedure of the manual.

REMOVING

1. Push the footrest release lever inward while rotating the footrest outward.
2. Lift the footrest assembly out of the mounting pin of the wheelchair frame.
3. Repeat STEPS 1-2 for opposite side, if necessary.



NOTE: Only 60° Front Rigging shown for clarity. Others will attach the same way.

FIGURE 1 - INSTALLING/REMOVING SWINGAWAY FOOTREST

ADJUSTING SWINGAWAY FOOTREST HEIGHT

HEIGHT ADJUSTMENT RANGES:

60°	13-17-inches
70°	13-17-inches
90°	5-8-inches
90°	5-11-inches (with 3-inch extension)

NOTE: If using ANY type of extension with the ADJUSTABLE FLIP-UP FOOTPLATE, refer to ADJUSTABLE ANGLE FLIP-UP FOOTPLATE PERPENDICULAR AND/OR INVERSION/EVERSION ADJUSTMENT in this procedure of the manual.

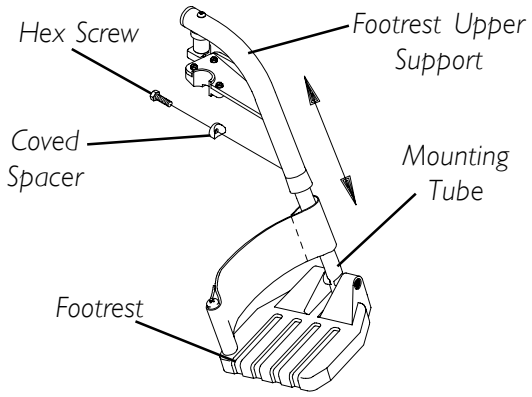


FIGURE 2 - ADJUSTING SWINGAWAY FOOTREST HEIGHT - 60°, 70° AND 70° TAPER

60°, 70° and 70° Taper (FIGURE 2)

1. Remove the footrest from the wheelchair. Refer to INSTALLING/REMOVING SWINGAWAY FOOTREST in this procedure of the manual.
2. Remove the hex screw and coved spacer and slide the footrest up or down on its mounting tube until the desired footrest height is achieved.
3. Reassemble the hex screw and coved spacer through the footrest upper support and mounting tube as shown in FIGURE 2.
4. Securely tighten the hex screw and coved spacer.
5. Install the footrest assembly onto the wheelchair. Refer to INSTALLING/REMOVING SWINGAWAY FOOTREST in this procedure of the manual.
6. Repeat STEPS 1-5 for the opposite side of the wheelchair, if necessary.

70° MFX AND 90° FOOTRESTS (FIGURE 3)

1. Remove any accessories that are attached to the footrests.
2. Remove the socket bolt, coved washer and locknut that secure the footplate to the footrest support.
3. Reposition the footplate to the desired height.
4. Reinstall the socket bolt through the mounting holes of the footplate and footrest support.

WARNING

DO NOT overtighten socket bolt and locknut. Footrest MUST be able to rotate upward from the horizontal to the vertical position.

5. Secure the footplate to the footrest support with the coved washer and locknut.

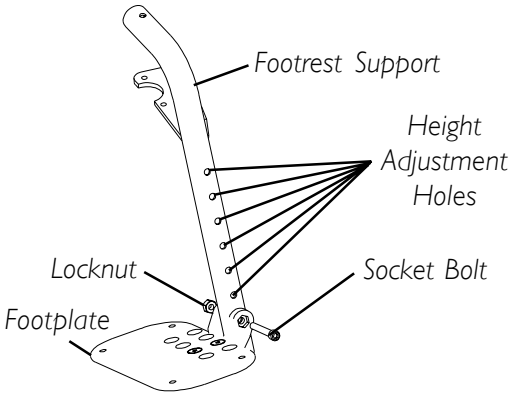


FIGURE 3 - INSTALLING/REMOVING/ ADJUSTING THE FOOTREST(S) - 70° MFX AND 90° FOOTRESTS

INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE (FIGURE 4)

1. Position the adjustable angle flip-up footplate hinge on the footrest support tube at the desired height.
2. Position the hardware on the footrest support as shown in FIGURE 4.
3. Flip the footplate hinge to the UP position.

NOTE: The footplate hinge will fall to the DOWN position.

4. Tighten the socket screw and locknut that secure the footplate hinge to the footrest support until the footplate hinge remains in the UP position.
5. Check the up and down motion of the footplate hinge to make sure the user of the wheelchair can operate the footplates easily.

NOTE: If the footplate's motion is too tight, loosen the socket screw and locknut approximately 1/4-turn.

NOTE: If the footplate's motion is too loose, tighten the socket screw and locknut approximately 1/4-turn.

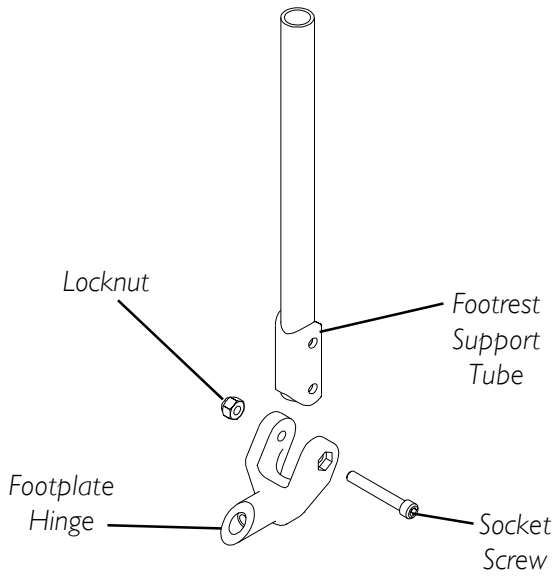


FIGURE 4 - INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE

COMPOSITE/ARTICULATING FOOTPLATE HEEL LOOP REPLACEMENT (FIGURE 5)

DISASSEMBLY

Composite.

1. Remove the hex screw and coved spacer that secure the lower footrest assembly to the swing away footrest assembly.
2. Remove the lower footrest assembly.
3. Remove the phillips screw and locknut that secure the heel loop to the footrest.
4. Slide heel loop off of the footrest.

Articulating.

1. Remove the phillips screws, washers and spacers that secure the heel loop to the articulating footplate.

REASSEMBLY

1. Replace heel loop.
2. Reverse the disassembly procedures.

NOTE: When securing the heel loop to the footrest assembly, tighten phillips screw until the spacer is secure.

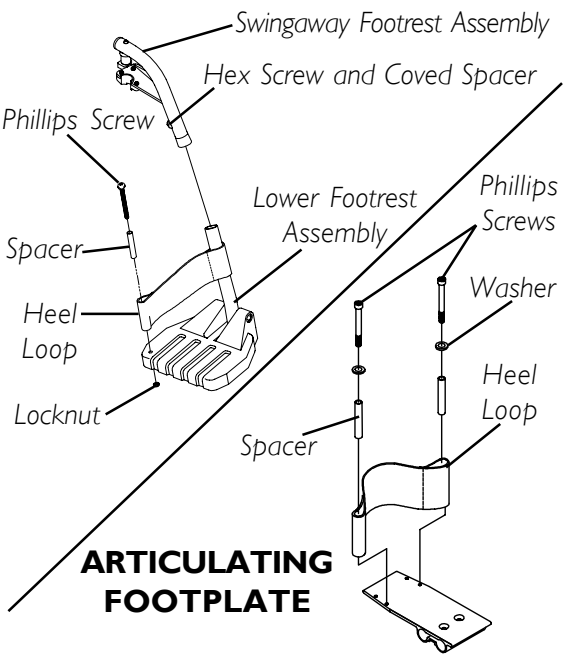


FIGURE 5 - COMPOSITE/ ARTICULATING FOOTPLATE HEEL LOOP REPLACEMENT

INSTALLING/REMOVING ELEVATING LEGREST/CALFPAD ASSEMBLY (FIGURE 6)

INSTALLING

1. Insert the footplate assembly into the calfpad assembly and secure it with bolt and nut.
2. Place legrest/calfpad assembly on the outside of the wheelchair and insert legrest mounting pin into the legrest mounting tube on the wheelchair frame.
3. Rotate legrest/calfpad assembly toward the inside of the wheelchair until it locks in place.

NOTE: The calfpad of the legrest will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for the other legrest assembly.

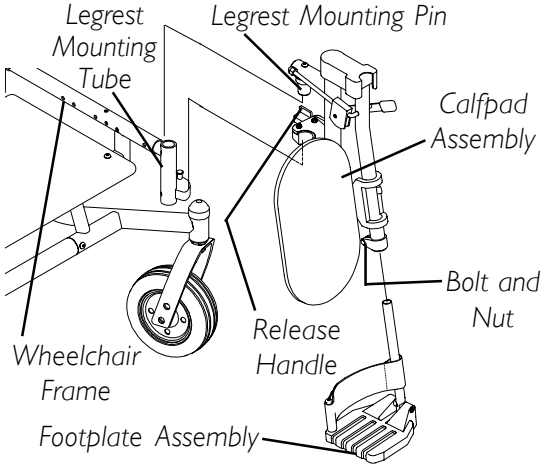


FIGURE 6 - INSTALLING/ REMOVING ELEVATING LEGREST/ CALFPAD ASSEMBLY

5. Adjust the footplate to the correct height by loosening the bolt and nut and sliding the inner tube up or down until desired height is achieved. Securely tighten bolt and nut.

REMOVING

1. Push the legrest release handle inward while rotating the footrest outward.
2. Lift the legrest assembly out of the legrest mounting tube.

ADJUSTING THE ELEVATING LEGREST/CALFPAD ASSEMBLY (FIGURE 7)

ADJUSTING THE LEGREST

1. Raise legs until the desired height is obtained by lifting up on the footplate assembly.
2. To reposition legrest to normal position, support leg with one (1) hand and push release lever forward with other hand.

ADJUSTING THE CALFPAD

1. Turn the calfpad towards the outside of the wheelchair.
2. Slide the calfpad up or down until the desired position is obtained.
3. To secure the calfpad, turn the calfpad towards the inside of the wheelchair.

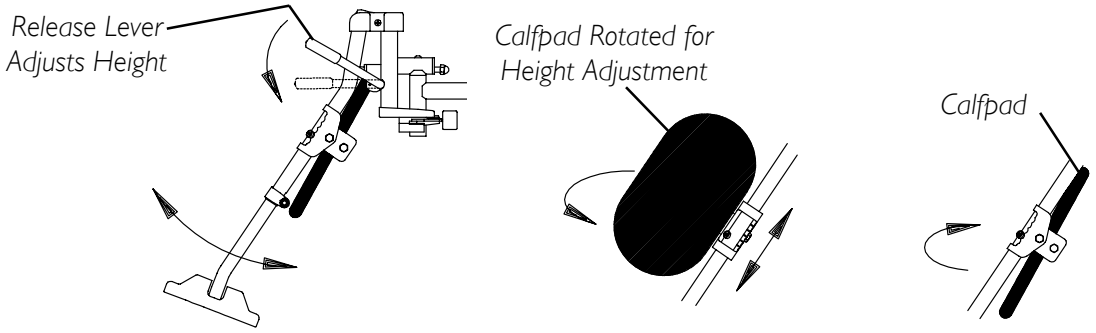


FIGURE 7 - ADJUSTING THE ELEVATING LEGREST/CALFPAD ASSEMBLY

This Procedure Includes the Following:
Installing/Removing/Adjusting Dual Point Armrest
Using/Installing/Adjusting Locking Cantilever Arms
Using/Installing/Adjusting Non-Locking Cantilever Arms
Arm Pad Replacement for Cantilever Arms
Installing/Removing T-Arms
Adjusting the T-Arms
Adjusting Transfer Assists and/or Side Guards - Arms

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

INSTALLING/REMOVING/ADJUSTING DUAL POINT ARMREST (FIXED AND ADJUSTABLE HEIGHT) (FIGURE 1)

WARNING

Make sure the locking mechanism is secured BEFORE using the wheelchair.

INSTALLING ARMREST

1. Unlock armrest assembly by flipping the arm assembly release lever located on the side rail to the UP (HORIZONTAL) position as shown in DETAIL "A" .

NOTE: Armrest locks MUST be in the unlocked position when placing arm into the arm sockets.

2. Install armrest assembly into the arm sockets.
3. When installed, lock the armrest assembly by pressing the release lever into the DOWN (VERTICAL) position as shown in DETAIL "A".
4. Repeat STEPS 1-3 for the opposite side of the wheelchair.
5. If necessary, adjust the armrest height. Refer to ADJUSTING ARMREST in this procedure of the manual.

REMOVING ARMREST

1. Unlock armrest assembly by flipping the arm assembly release lever located on the side rail to the UP (HORIZONTAL) position as shown in DETAIL "A".
2. Pull up on the armrest assembly to remove the armrest from the arm socket.
3. Repeat STEPS 1-2 for opposite side of wheelchair, if necessary.

ADJUSTING ARMREST

1. Unlock the armrest assembly by flipping the armrest release lever on the top front of the arm to the UP (HORIZONTAL) position as shown in DETAIL "A".
2. Adjust armrest assembly to desired height.
3. Lock the armrest assembly by pressing the release lever into the DOWN (VERTICAL) position as shown in DETAIL "A".
4. Pull up on the armrest assembly to ensure the armrest is locked in place.
5. Repeat STEPS 1-4 for opposite side of wheelchair, if necessary.

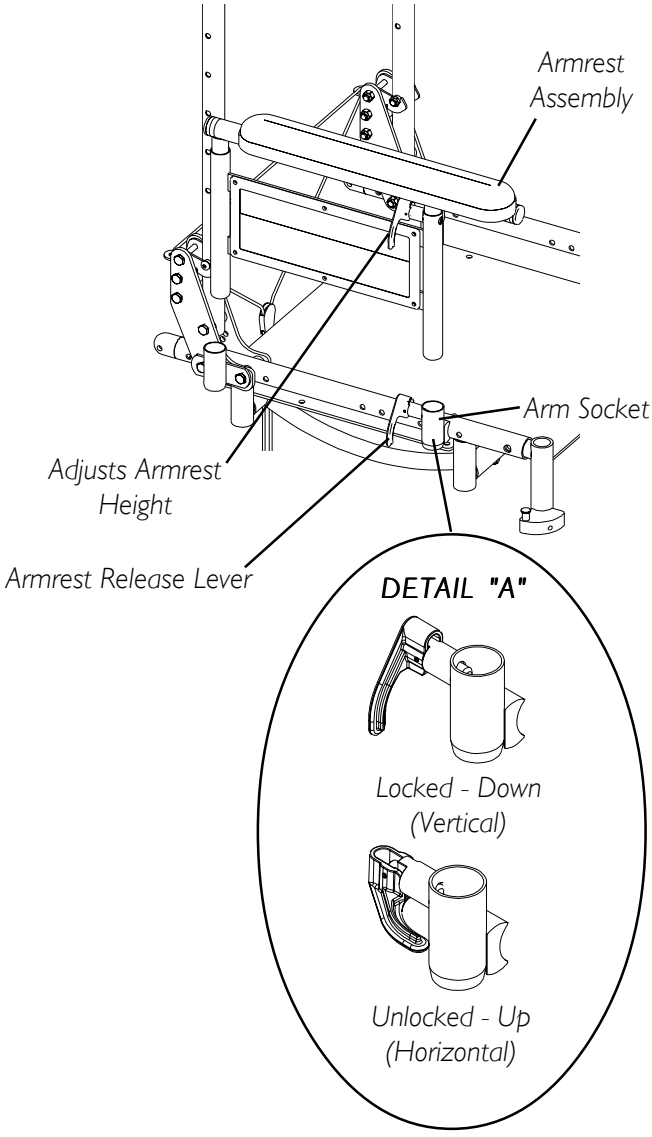


FIGURE 1 - INSTALLING/REMOVING/ADJUSTING DUAL POINT ARMREST

USING/INSTALLING/ADJUSTING LOCKING CANTILEVER ARMS

USING LOCKING CANTILEVER ARMS (FIGURE 2)

1. Pull the actuator of the locking mechanism towards the front of the wheelchair.
2. While holding the actuator of the locking mechanism, pull up on the cantilever arm.

NOTE: If necessary, the locking mechanism in the cantilever arm can be repositioned so the cantilever arm will open down instead of up. For this adjustment, contact a qualified technician.

3. To lock the cantilever arm, push down until there is an audible click.
4. Pull up on the cantilever arm to make sure it is locked in place.

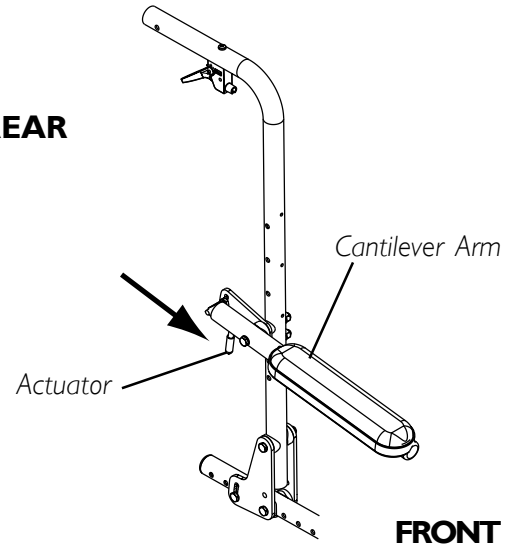


FIGURE 2 - USING LOCKING CANTILEVER ARMS

INSTALLING LOCKING CANTILEVER ARMS (FIGURE 3)

NOTE: When removing the locknuts and washers from the cantilever arm assembly, leave the top hex bolt, coved washers and spacer (between adjustment plate and cantilever arm) in place.

1. Slide the partially assembled cantilever arm assembly w/mounting hardware through the back cane. Make sure the adjustment plate is towards the inside of the wheelchair.

NOTE: This includes top hex bolt, coved washers and spacer (between adjustment plate and cantilever arm).

2. Slide the bottom hex bolt (w/coved washer) through the adjustment plate and back cane.
3. Securely tighten the cantilever arm to the wheelchair with two (2) locknuts and washers.
4. Adjust the angle of the cantilever arm, if necessary. Refer to ADJUSTING LOCKING CANTILEVER ARM ANGLE in this section of the manual.

ADJUSTING LOCKING CANTILEVER ARM HEIGHT (FIGURE 3)

NOTE: When removing the locknuts and washers from the cantilever arm assembly, leave the top hex bolt, coved washers and spacer (between adjustment plate and cantilever arm) in place.

1. Remove the two (2) locknuts and washers securing the cantilever arm assembly to the back cane.
2. Remove the cantilever arm assembly with hardware from the back cane.
3. Perform STEPS 1-4 in INSTALLING LOCKING CANTILEVER ARM to reposition the arm at the desired height.

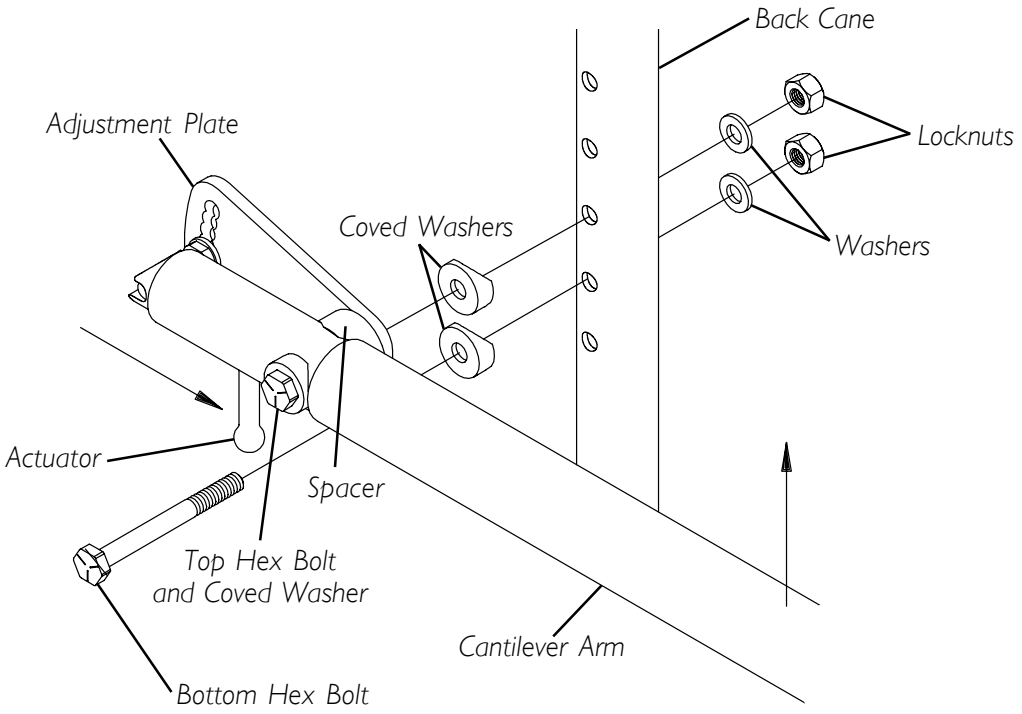
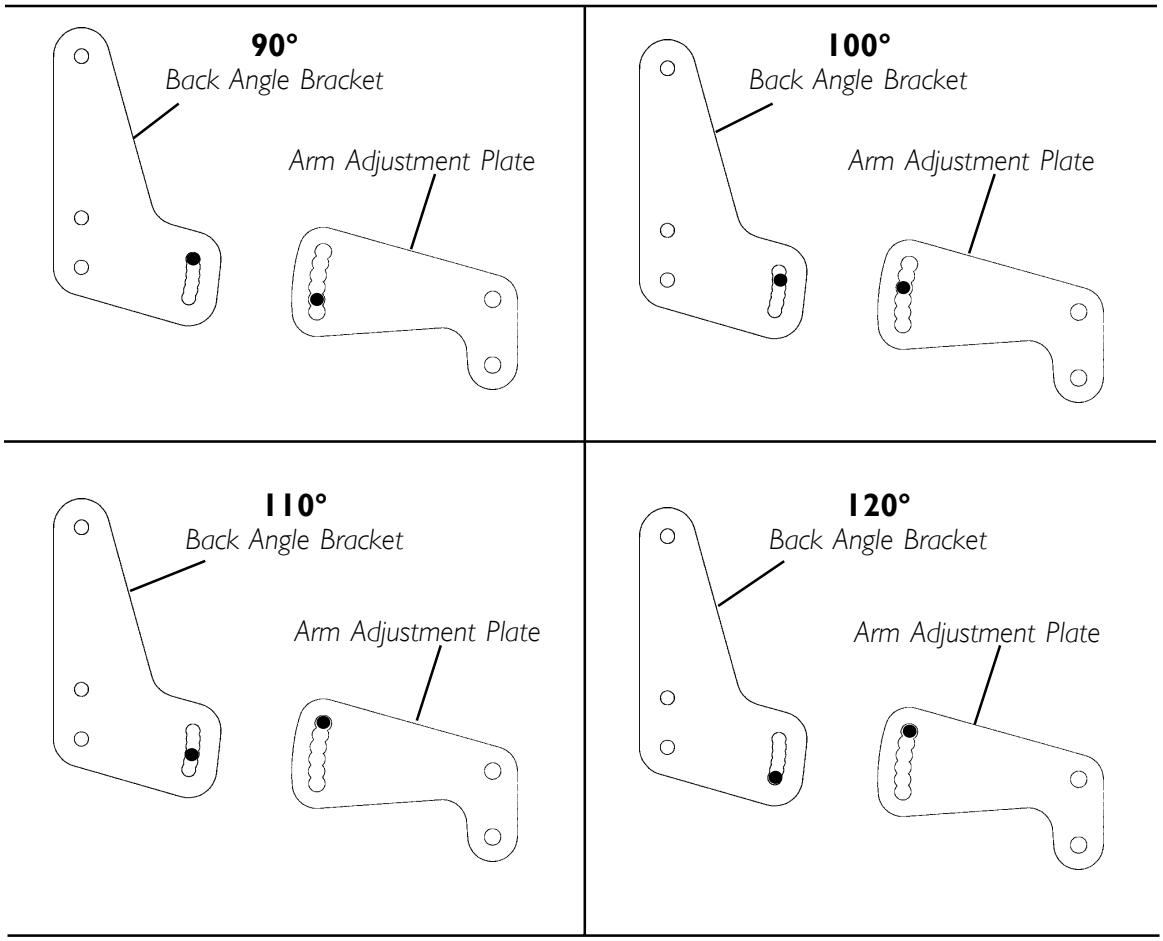


FIGURE 3 - INSTALLING LOCKING CANTILEVER ARMS / ADJUSTING LOCKING CANTILEVER ARM HEIGHT

ADJUSTING LOCKING CANTILEVER ARM ANGLE (FIGURE 4)

NOTE: This adjustment is recommended if the back angle has been changed.

1. Flip the cantilever arm up and out of the way.
2. Remove the locknut that secures the locking pin to the arm adjustment plate.
3. Refer to FIGURE 4 to determine the mounting hole in the arm adjustment plate that will be used to correspond to the back angle.
4. Securely tighten the locking pin and washer to the adjustment plate with a locknut.
5. Repeat STEPS 1-4 for the opposite side, if necessary.



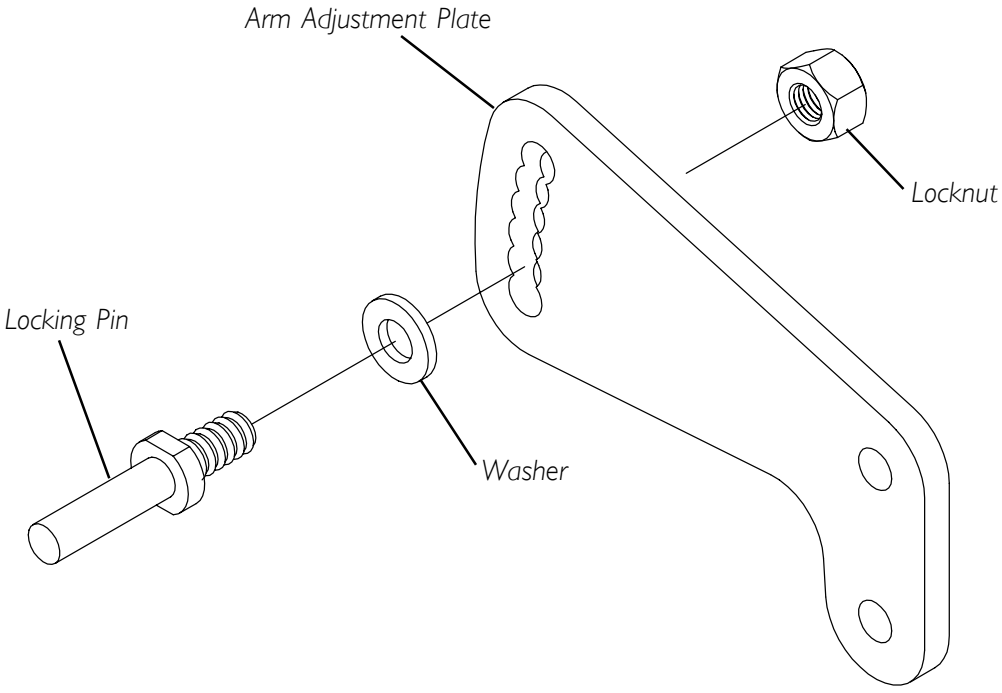


FIGURE 4 - ADJUSTING LOCKING CANTILEVER ARM ANGLE

USING/INSTALLING/ADJUSTING NON-LOCKING CANTILEVER ARMS

WARNING

DO NOT use lap trays with non-locking cantilever arms.

USING NON-LOCKING CANTILEVER ARMS (FIGURE 5)

1. Pull the end of the cantilever arm down to lower the cantilever arm.
2. Pull the end of the cantilever arm up to move it out of the way.

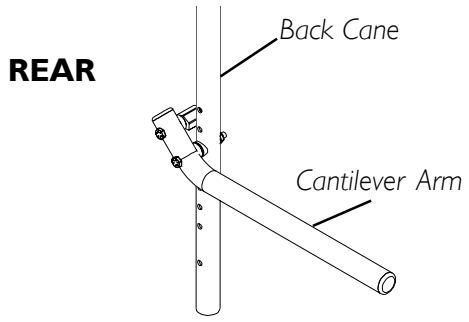


FIGURE 5 - USING NON-LOCKING CANTILEVER ARMS

INSTALLING NON-LOCKING CANTILEVER ARMS (FIGURE 6)

1. Remove the locknut and washer from the lower hex bolt installed on the non-locking cantilever arm.
2. Slide the hex bolt of the cantilever arm assembly into the desired mounting hole on the back cane.
3. Secure the cantilever arm to the wheelchair with a washer and locknut as shown in FIGURE 6.
4. Adjust the angle of the cantilever arm, if necessary. Refer to ADJUSTING NON-LOCKING CANTILEVER ARM ANGLE in this section of the manual.

ADJUSTING NON-LOCKING CANTILEVER ARM HEIGHT (FIGURE 6)

1. Remove the locknut and washer from the lower hex bolt securing the cantilever arm to the back cane.
2. Slide the cantilever arm assembly out of the back cane.
3. Reposition the cantilever arm assembly to the desired mounting hole.
4. Secure the cantilever arm to the wheelchair with a washer and locknut as shown in FIGURE 6.

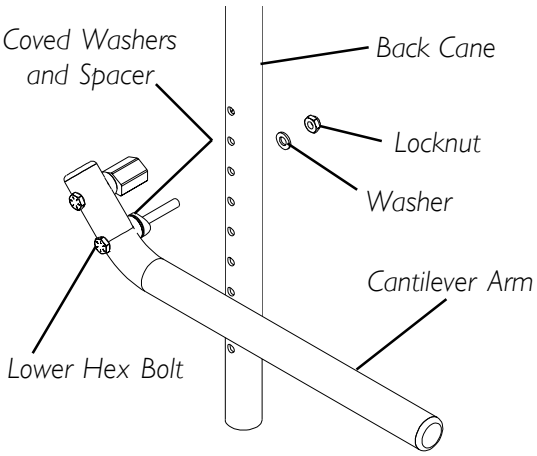
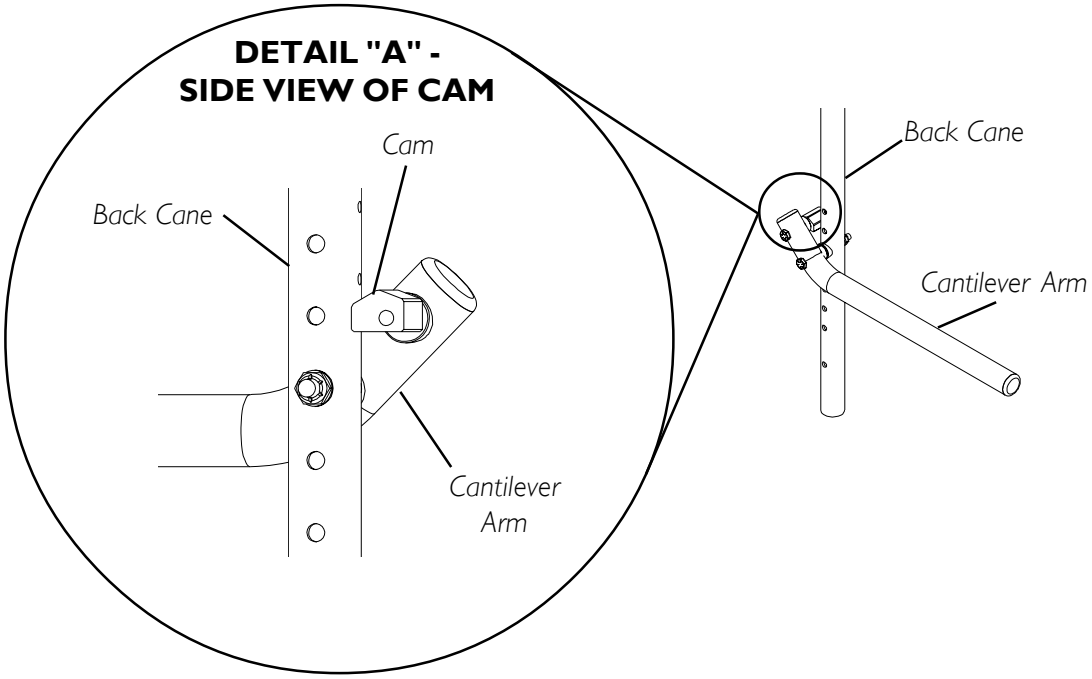
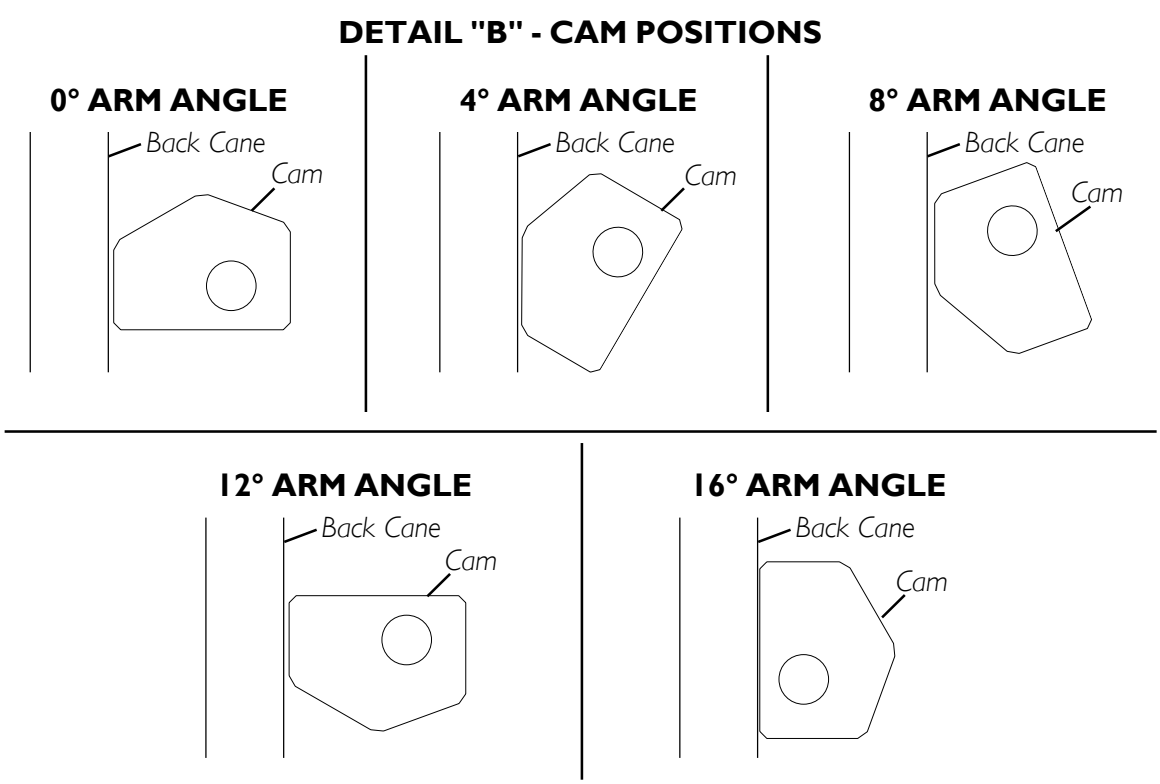


FIGURE 6 - INSTALLING NON-LOCKING CANTILEVER ARMS/ ADJUSTING NON-LOCKING CANTILEVER ARM HEIGHT

ADJUSTING NON-LOCKING CANTILEVER ARM ANGLE (FIGURE 7)

1. Loosen the mounting screw securing the cam to the cantilever arm.
2. Rotate the cam until the desired angle (DETAIL "B" of FIGURE 7) is achieved.
3. Tighten the mounting screw securing the cam to the cantilever arm.





NOTE: All arm angles are relative to the back cane.

FIGURE 7 - ADJUSTING NON-LOCKING CANTILEVER ARM ANGLE

ARM PAD REPLACEMENT FOR CANTILEVER ARMS (FIGURE 8)

1. Remove the mounting screws from the armrest pad.
2. Replace with NEW armrest pad.
3. Secure with existing hardware.

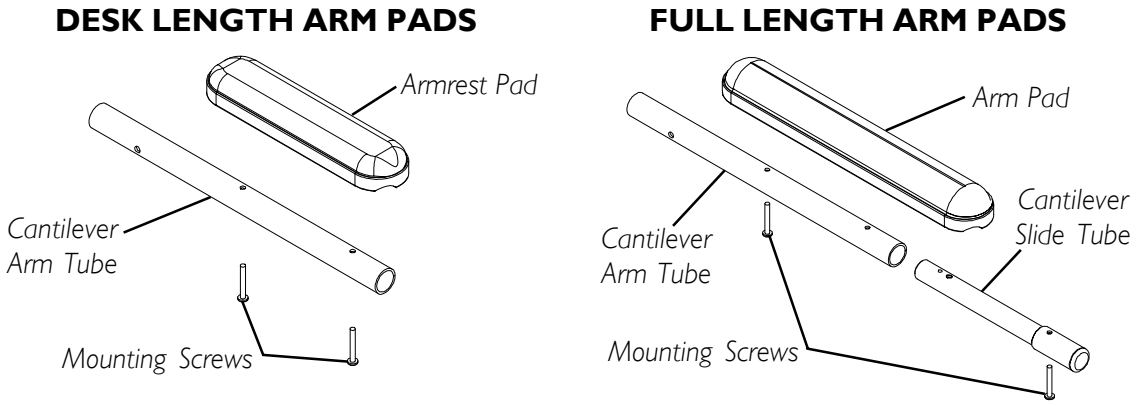


FIGURE 8 - ARM PAD REPLACEMENT FOR CANTILEVER ARMS

INSTALLING/REMOVING T-ARMS (FIGURE 9)

INSTALLING T-ARMS

1. Position the T-arm over the T-arm socket on the wheelchair frame.

NOTE: Make sure the locking lever is towards the front of the wheelchair.

2. Slide T-arm into T-arm socket until the locking lever is in the slot in the T-arm socket and an audible "click" is heard.
3. Pull up on T-arm to make sure T-arm is locked in place.

NOTE: If the T-arm does not slide in the T-arm socket as desired, adjust the T-arm socket. Refer to ADJUSTING THE T-ARMS in this procedure of the manual.

4. Adjust the T-arm for desired height, width and depth, if necessary. Refer to ADJUSTING THE T-ARMS in this procedure of the manual.
5. Repeat STEPS 1-4 for opposite side of wheelchair.

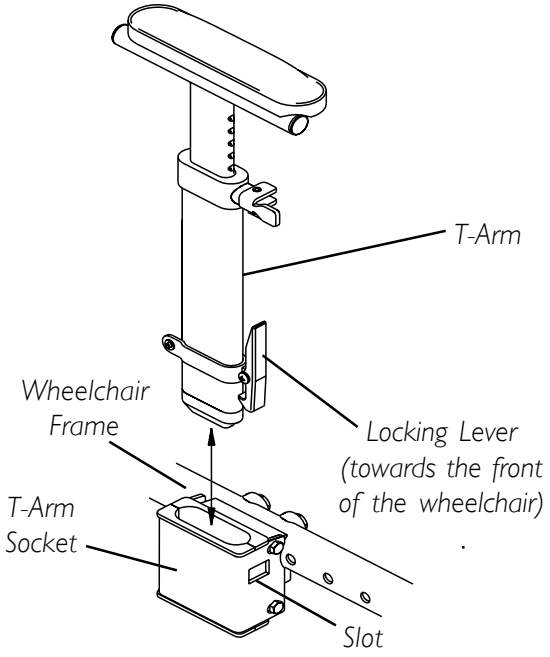


FIGURE 9 - INSTALLING/ REMOVING T- ARMS

REMOVING T-ARMS

1. Press in on the locking lever and lift the T-arm straight up and out of the T-arm socket.

NOTE: If the T-arm does not slide up and down in the T-arm socket as desired, adjust the T-arm socket. Refer to ADJUSTING THE T-ARMS in this procedure of the manual.

2. Repeat STEP 2 for opposite side of the wheelchair.

ADJUSTING THE T-ARMS

ADJUSTING T-ARM HEIGHT (FIGURE 10)

1. Unlock the T-arm by flipping the T-arm release lever towards the inside of the wheelchair.

NOTE: If necessary, pull out on the T-arm release lever and rotate 180° so it can be flipped towards the outside of the wheelchair.

2. Slide the T-arm to one (1) of:
   A. **Low Height T-Arms** - Nine (9) positions.
   B. **High Height T-Arms** - Seven (7) positions.

NOTE: If the inside T-arm post does not slide up and down in the outside T-arm post as desired, perform one (1) of the following:

   A. **Tighten** - Tightening the set screws on the outside T-arm post **will make it more difficult** to move the inside T-arm post up and down.
   B. **Loosen** - Loosening the set screws on the outside T-arm post **will make it easier** to move the inside T-arm post up and down.

3. Lock the T-arm by flipping the T-arm release lever towards the front of the wheelchair.

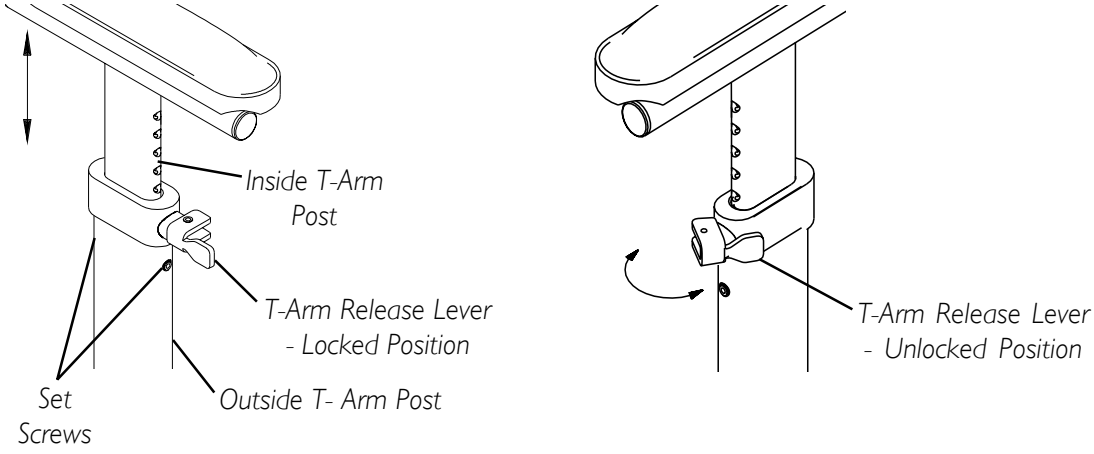


FIGURE 10 - ADJUSTING T-ARM HEIGHT

ADJUSTING T-ARM WIDTH (FIGURE 11)

1. Remove the two (2) phillips screws that secure the arm pad to the arm tube.
2. Turn the arm pad around and reposition the arm pad on the arm tube.
3. Re-secure the arm pad to the arm tube with the two (2) phillips screws. Tighten securely.
4. Repeat for the opposite side, if necessary.

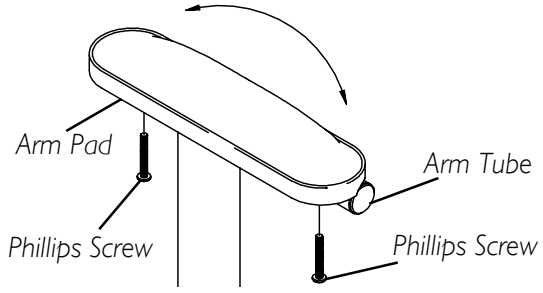


FIGURE 11 - ADJUSTING T-ARM WIDTH

ADJUSTING T-ARM DEPTH (FIGURE 12)

1. Remove the two (2) phillips screws that secure the arm pad to the arm tube.
2. Remove the two (2) socket screws that secure the arm tube to the T-arm post.
3. Reposition the arm tube on the T-arm post:
   A. **Desk Length Arms** - to one (1) of three (3) positions depending on the desired arm pad depth.
   B. **Full Length Arms** - to one (1) of five (5) positions depending on the desired arm pad depth.

NOTE: Additional positions are obtainable by turning the arm tube 180°.

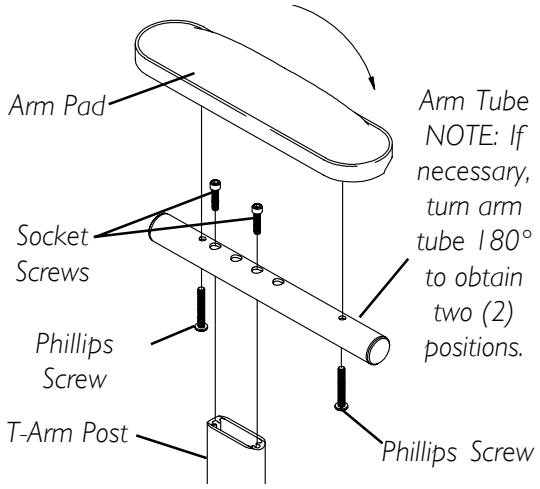


FIGURE 12 - ADJUSTING T-ARM DEPTH

4. Re-secure the arm tube to the T-arm post with the two (2) socket screws. Torque to 60-70 in./lbs.
5. Reattach the arm pad to the arm tube with the two (2) phillips screws. Tighten securely.
6. Repeat for the opposite side, if necessary.

ADJUSTING T-ARM SOCKETS (FIGURE 13)

NOTE: Perform this procedure if the T-arm is too loose in the socket or does not easily slide up and down in the socket.

1. Remove the rear wheels from the wheelchair, if necessary. Refer to REMOVING/INSTALLING REAR WHEELS in PROCEDURE 7 of this manual.
2. Loosen, but do not remove the four (4) hex screws and washers that secure T-arm socket to T-arm clamp.

NOTE: The T-arm socket will disassemble if the four (4) hex screws and washers are removed.

3. Slide the T-arm into the T-arm socket until the locking lever is in the slot in the T-arm socket and an audible "click" is heard.
4. Squeeze the T-arm socket the T-arm clamp together until the socket is flush with the T-arm.

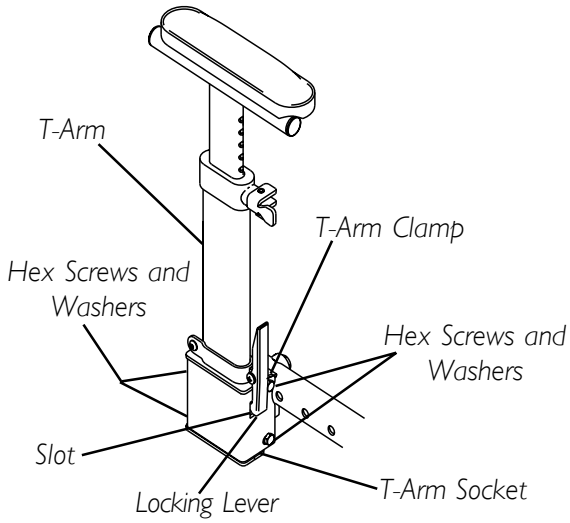


FIGURE 13 - ADJUSTING T-ARM SOCKETS

5. While holding the T-arm socket and the T-arm clamp together, tighten the four (4) hex screws and washers. Tighten securely.
6. Press in on the locking lever and lift the T-arm straight up and out of the T-arm socket.
7. Repeat STEPS 3-6, if necessary until the T-arm slides in the T-arm socket as desired.
8. If necessary, install rear wheels. Refer to REMOVING/INSTALLING REAR WHEELS in PROCEDURE 7 of this manual.

ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS (FIGURE 14)

1. Remove the T-arm from the wheelchair. Refer to INSTALLING/REMOVING T-ARMS in this procedure of the manual.
2. Remove the two (2) socket screws that secure the side guard to the bottom clamp.

NOTE: Adjusting the side guards will directly affect the position of the transfer assist.

3. Perform one (1) of the following:

   Small Side Guards - Move the bottom clamp up one (1) of two (2) mounting positions in the side guard.

   Large Side Guards - Move the bottom clamp up one (1) of three (3) mounting positions in the side guard.

4. Re-secure the side guard to the bottom clamp with the two (2) socket screws.
5. Install the T-arm onto the wheelchair. Refer to INSTALLING/REMOVING T-ARMS in this procedure of the manual.

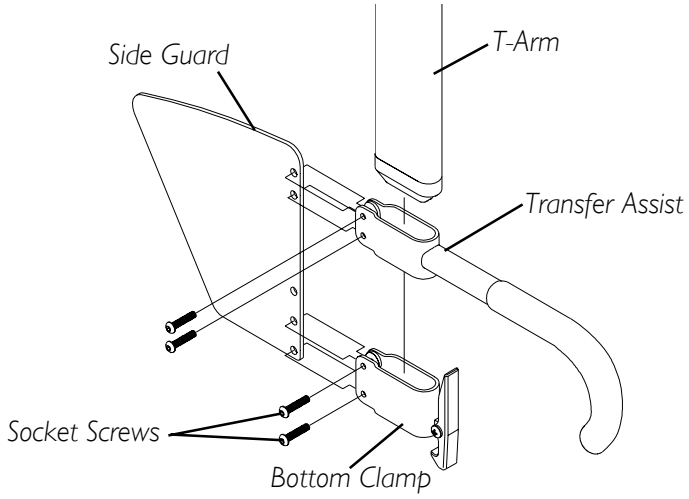


FIGURE 14 - ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS

This Procedure Includes the Following:
Folding/Unfolding Back Assembly
Installing/Removing the Stroller Handles
Installing/Removing/Adjusting the Adjustable Angle Stroller Handles
Installing/Replacing Seat Positioning Straps
Installing/Replacing Chest Positioning Straps
Installing/Replacing The Back Upholstery
Installing the Seat Cushion

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

FOLDING/UNFOLDING BACK ASSEMBLY (FIGURE 1)

WARNING

The back MUST be locked securely in place BEFORE using the wheelchair.

NOTE: When folding or unfolding the back, make sure the back release cord does not get caught in the release latches.

1. Do one (1) of the following:
   A. **UNFOLD** - Push/pull the back towards rear of wheelchair until it locks in place.
   B. **FOLD** - Pick up on the back release cord and push the back towards the front of the wheelchair.

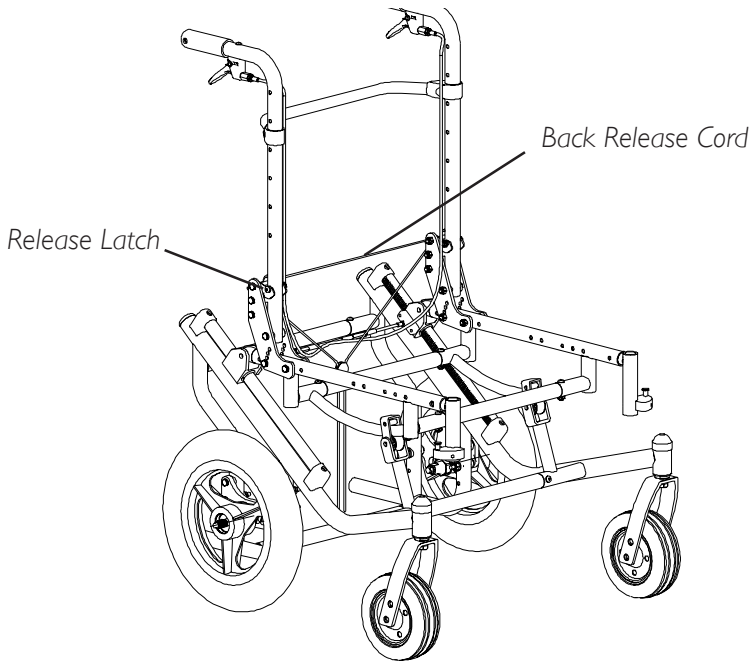


FIGURE 1 - FOLDING/UNFOLDING BACK ASSEMBLY

INSTALLING/REMOVING THE STROLLER HANDLES (FIGURE 2)

INSTALLING

1. Remove the plug buttons from both back canes, if necessary.
2. Slide the stroller handle into the back canes.
3. Align the mounting holes of the stroller handle and the back canes.
4. Press the button on the quick-release pin and insert the quick-release pin through the back cane and stroller handle.
5. Release the button on the quick-release pin.
6. Pull on the stroller handle to make sure it is locked securely in place.

REMOVING

1. Push in the button of the quick-release pins.
2. Pull out the quick-release pins that secures the stroller handle to the back canes.
3. Remove the stroller handle from the wheelchair and discard.
4. Install the NEW stroller handle. Refer to INSTALLING THE STROLLER HANDLES in this procedure of the manual.

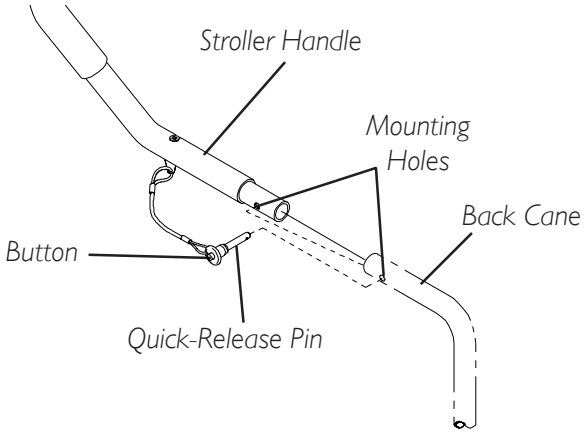


FIGURE 2 - INSTALLING/REMOVING THE STROLLER HANDLES

INSTALLING/REMOVING/ADJUSTING THE ADJUSTABLE ANGLE STROLLER HANDLES

NOTE: Adjustable angle stroller handles are bolted onto recliners ONLY.

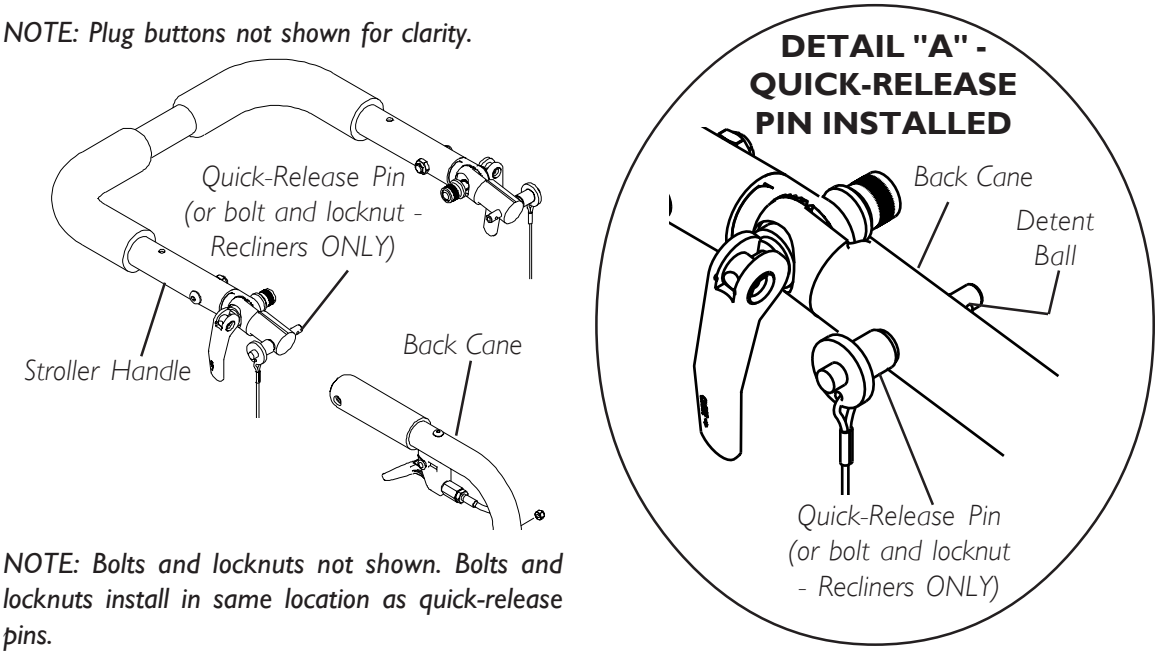
INSTALLING (FIGURE 3)

1. Remove plug buttons from both back canes.
2. Slide the adjustable height stroller handle into the back canes.
3. Align the mounting holes of the adjustable angle stroller handle and the back cane.
4. Secure adjustable angle stroller handle to the back canes with the two (2) quick-release pins or the two (2) bolts and locknuts.
5. If necessary, adjust the height. Refer to ADJUSTING in this procedure of the manual.

REMOVING (FIGURE 3)

1. Press and hold the buttons on the quick-release pins
2. Remove the adjustable angle stroller handle from the back cane.
3. Install plug buttons.

NOTE: Plug buttons not shown for clarity.



NOTE: Bolts and locknuts not shown. Bolts and locknuts install in same location as quick-release pins.

FIGURE 3 - INSTALLING/REMOVING THE ADJUSTABLE ANGLE STROLLER HANDLES

ADJUSTING (FIGURE 4)

1. Flip both release levers to the unlocked position.
2. Adjust stroller handle to desired angle.
3. Flip both release levers to the locked position.
4. Push down on stroller handle to ensure release levers hold the desired position of the stroller handle.
5. If release levers do not hold the position, tighten the release lever by performing the following:

   A. Flip release lever to the unlocked position.

   B. Rotate thumbscrew CLOCKWISE one (1) revolution.

   NOTE: When tightening the release lever, the release lever must be able to close completely into the locked position. Otherwise, the release levers will not hold the desired angle.

   C. Flip release levers to the locked position.

   NOTE: If the release levers do not close completely into the locked position, rotate the thumbscrew on each release lever COUNTERCLOCKWISE 1/2 revolution.

   D. Repeat STEPS A-C for opposite release lever.

   E. Push down on stroller handle to ensure release levers hold the desired position of the stroller handle.

   F. Repeat STEPS A-E until release levers hold the position.

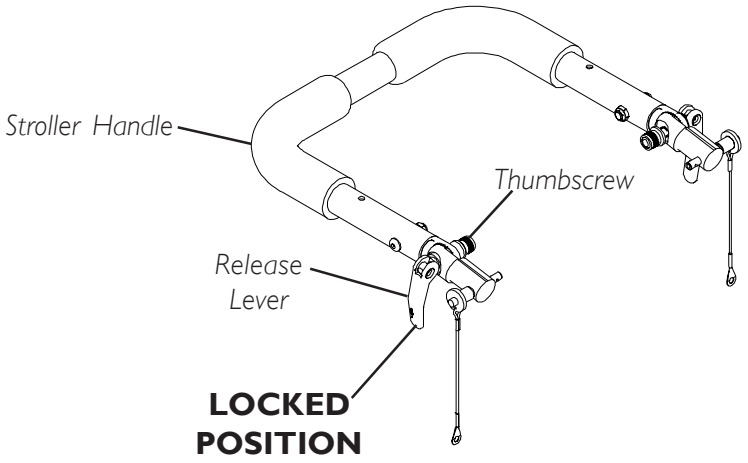


FIGURE 4 - ADJUSTING THE ADJUSTABLE ANGLE STROLLER HANDLES

INSTALLING/REPLACING SEAT POSITIONING STRAPS (FIGURE 5)

INSTALLING

1. Remove the hex screw and locknut that secures the back cane to the back plate.
2. Position the seat positioning strap against the back plate.
3. Install the hex screw through the seat positioning strap, coved spacers and back cane.
4. Securely tighten the seat positioning strap to the wheelchair with the locknut.
5. Repeat STEPS 1-4 for opposite side.

REPLACING

1. Remove the hex screw, locknut and seat positioning strap from the back plate of the wheelchair frame.
2. Discard EXISTING seat positioning strap.
3. Install the NEW seat positioning strap to the wheelchair. Refer to INSTALLING SEAT POSITIONING STRAPS in this procedure of the manual.

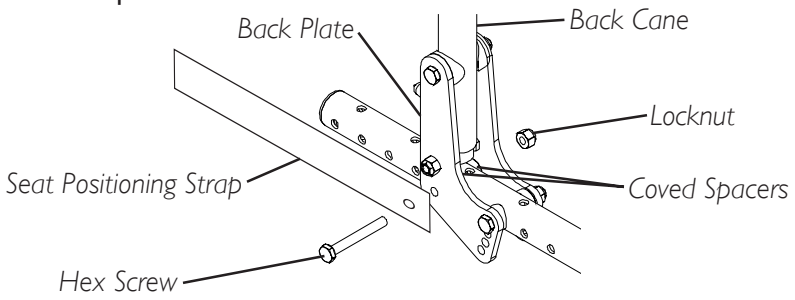


FIGURE 5 - INSTALLING/REPLACING SEAT POSITIONING STRAPS

INSTALLING/REPLACING CHEST POSITIONING STRAPS (FIGURE 6)

INSTALLING

1. Position the chest positioning strap to one (1) of the holes on the back cane.

NOTE: The standard recommended position for the chest positioning strap is in the top hole of the back cane, but may be mounted according to the user's needs.

2. Secure the chest positioning strap to the back canes with the NEW/EXISTING hex screw and locknut as shown in FIGURE 9.
3. Repeat STEPS 1-2 for opposite side.

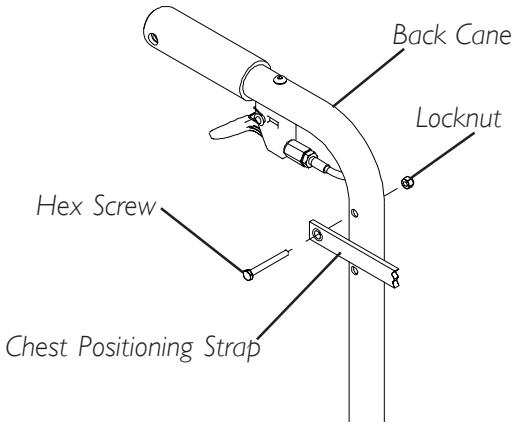


FIGURE 6 - INSTALLING/ REPLACING CHEST POSITIONING STRAP

REPLACING

1. Remove the hex screw that secures the chest positioning strap to the back cane.
2. Discard EXISTING chest positioning strap.
3. Repeat STEPS 1-2 for opposite side, if necessary.
4. Install the NEW chest positioning strap. Refer to INSTALLING CHEST POSITIONING STRAPS in this procedure of the manual.

INSTALLING/REPLACING THE BACK UPHOLSTERY (FIGURE 7)

INSTALLING

1. Position the back upholstery on the back cane as shown in FIGURE 7.
2. Starting with the top two (2) mounting holes secure the back upholstery to the back canes with the ten (10) phillips screws and washers.

REPLACING

1. Remove the ten (10) phillips screws and washers that secure the back upholstery to the back canes.
2. Remove existing back upholstery from back canes.
3. Install new back upholstery onto the back canes.

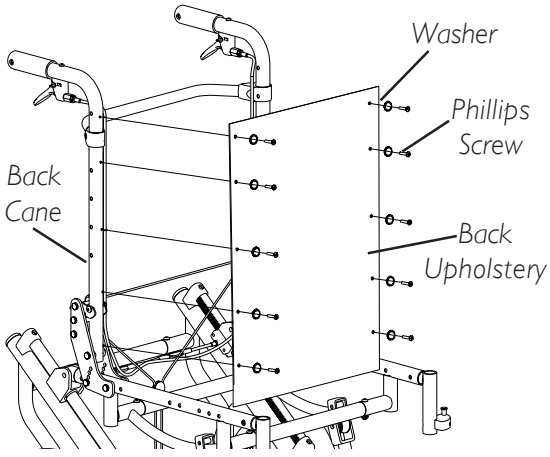


FIGURE 7 - INSTALLING/ REPLACING THE BACK UPHOLSTERY

4. Install the ten (10) phillips screws and washers that secure the back upholstery to the back canes.

INSTALLING THE SEAT CUSHION (FIGURE 8)

WARNING

The seat cushion IS NOT designed for use in the treatment of pressure sores or by individuals at risk of developing pressure sores.

Your therapist and physician should be consulted if you have any questions regarding weight relief, self-examination of the skin, or individual limitations and needs.

Make sure the hook and loop fastening strips are securely attached between the seat pan and cushion before using.

CAUTION

The cover is designed to protect the foam against a user's incontinence and to provide fire retardency so the cushion must not be used without its cover. If the cover is torn, it must be replaced.

Machine wash cold. Gentle cycle. Mild detergent. NO fabric softeners or bleach. Tumble dry low or air dry. Warm or hot water or high dryer heat will reduce flame retardancy.

Wipe down surfaces with a slightly dampened cloth. DO NOT submerge cushion in water. If cushion foam becomes contaminated because of incontinence, it should be replaced beause the foam is absorbent and cannot be cleaned.

1. Perform one (1) of the following:
   A. **FLUSH MOUNT SEAT PAN** - Position the cushion with the flap toward the REAR of the seat pan.
   B. **DROP MOUNT SEAT PAN** - Position the cushion with the flap toward the FRONT of the seat pan.
2. Ensure the strips of loop fastener are on the underside of the cushion.
3. Align the front edge of the cushion with the front edge of the seat pan.

NOTE: Ensure the cushion is centered on the seat pan. Otherwise the hook and loop fastening strips will not engage properly.

WARNING

Make sure the hook and loop fastening straps are securely attached between the seat pan and cushion before using.

4. Secure the cushion to the seat pan, making sure that the strips of loop fastener on the cushion are securely attached to the strips of hook fastener on the seat pan.

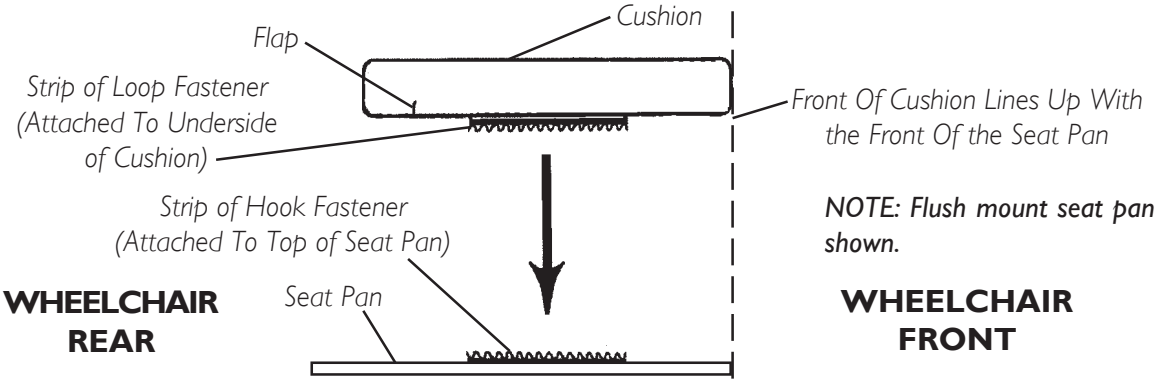


FIGURE 8 - INSTALLING THE SEAT CUSHION

This Procedure Includes the Following:
Engaging Tilt-in-Space
Adjusting Trigger Release Cables
Positioning Tilt Locking Collars

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

The back height, seat depth, back angle, seating system, tilt angle, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the eleven (11) may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

ENGAGING TILT-IN-SPACE (FIGURE 1)

WARNING

The Invacare Solara wheelchair MUST be operated by an Assistant when in ANY tilted position.

ALWAYS make sure that the wheelchair is stable BEFORE using the tilt-in-space. Rear wheels may have to be repositioned rearward depending on the degree of tilt-in-space required. ALWAYS ensure stability BEFORE using maximum amount of tilt-in-space. TEST wheelchair BEFORE it is occupied by the end user to ensure safety.

ALWAYS engage both wheel locks while using the tilt-in-space.

NOTE: To lower the seat parallel with the floor, reverse the following procedure.

1. Place the wheelchair on a level surface.
2. Engage both wheel locks.
3. Inform the occupant of the wheelchair that the wheelchair is about to be tilted and remind them to lean back.
4. Make sure the occupant's hands and body are clear of all pinch points.
5. Stand behind the wheelchair and grasp both back canes firmly.
6. Pull up on the trigger release levers to release the tilt mechanism from the tilt slide.
7. SLOWLY, push down on the back canes while pulling up on the trigger release levers in a continuous motion.
8. When the seat reaches the desired angle, SLOWLY let go of the trigger release levers.

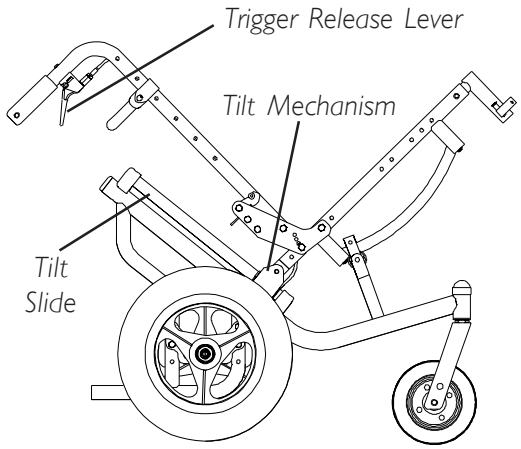


FIGURE 1 - ENGAGING TILT-IN-SPACE

ADJUSTING TRIGGER RELEASE CABLES (FIGURE 2)

NOTE: This procedure applies to tilt-in-space release cables ONLY.

WARNING

DO NOT adjust the trigger release cables while the cables are coiled up. The adjustment will be too tight when the cable is straightened and the tilt mechanism will not lock and hold its position, possibly causing injury.

1. To adjust the **LEFT** tilt mechanism:

   Squeeze the trigger release lever of the **RIGHT** cable assembly and try to tilt the wheelchair. The wheelchair should not tilt.

2. If the **LEFT** side of the wheelchair tilts without squeezing the trigger release lever of the **LEFT** cable assembly, perform the following steps:

   A. Loosen the cable locking nut that secures the cable adjusting nut in place.

   B. Turn cable adjusting nut one (1) of two (2) ways:

   NOTE: If the cable is too loose, the tilt mechanism will not work.

WARNING

DO NOT over tighten the cable adjusting nut on the cable. Over tightening the cable adjusting nut on the cable WILL unlock the tilt mechanism, possibly causing injury.

- **TO TIGHTEN** - Turn the cable adjusting nut CLOCKWISE. DO NOT overtighten the cable adjusting nut. Refer to **FIGURE 2**.
- **TO LOOSEN** - Turn the cable adjusting nut COUNTER-CLOCKWISE. Refer to FIGURE 2.

   C. While holding the cable adjusting nut in place, tighten the cable locking nut against the cable adjusting nut.

   D. Repeat STEP 1.

   E. Repeat STEP 2 until the **LEFT** side of the wheelchair DOES NOT tilt.

3. To adjust the RIGHT tilt mechanism:

   A. Repeat STEPS 1 and 2 for the **LEFT** trigger release lever.

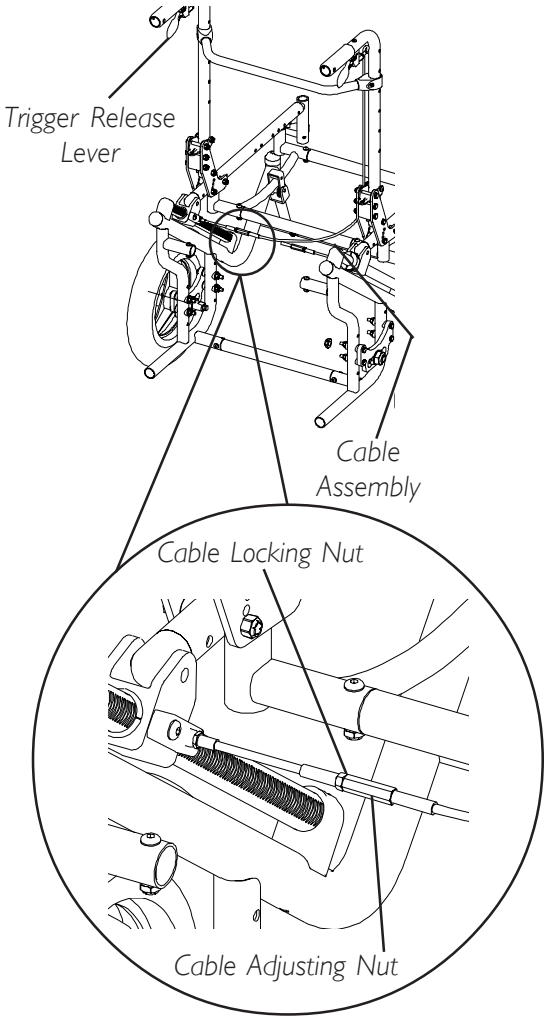


FIGURE 2 - ADJUSTING TRIGGER RELEASE CABLES

POSITIONING TILT LOCKING COLLARS

WARNING

Anterior (forward) tilt is a feature of this wheelchair designed for the USE OF A HEALTHCARE PROFESSIONAL or ASSISTANT ONLY. Engagement of the anterior (forward) tilt must NEVER be performed by the wheelchair user. When anterior (forward) tilt is needed, it must ALWAYS be engaged by a HEALTHCARE PROFESSIONAL or ASSISTANT.

The back height, seat depth, back angle, seating system, tilt angle, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the eleven (11) may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

DO NOT operate the wheelchair when the seat frame is in the anterior (forward) tilt position (frame stops in the lower position and approximately 10° forward tilt). Serious bodily injury may occur to the patient and the assistant(s).

TO HEALTHCARE PROFESSIONALS/ASSISTANTS:

Make sure the occupant of the wheelchair is properly positioned.

Always engage both wheel locks.

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely and locking collars are positioned at the same position on the tilt slide.

ADJUSTING UPPER TILT LOCKING COLLAR (FIGURE 3)

NOTE: This procedure adjusts the degree of tilt that the wheelchair returns to for normal operation. If the amount of tilt MUST be limited, refer to ADJUSTING LOWER TILT LOCKING COLLAR in this procedure of the manual.

1. Loosen the two (2) socket screws that secure the tilt locking collar to the tilt slide.
2. Repeat STEP 1 for opposite side of wheelchair.

NOTE: To determine tilt angle relative to the seat frame, place a magnetic protractor (available at any hardware store) on the back and adjust the back until the magnetic protractor reads desired angle of tilt.

3. Tilt the wheelchair to the desired angle of tilt.

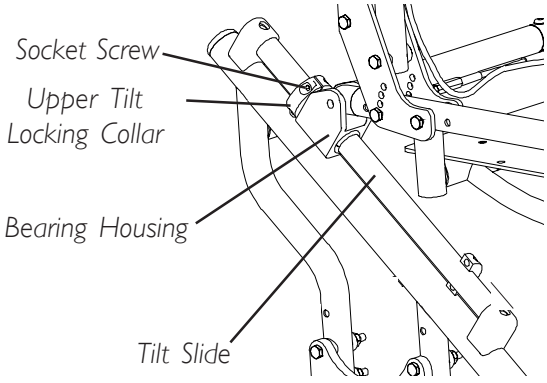


FIGURE 3 - ADJUSTING UPPER TILT LOCKING COLLAR

NOTE: The Solara seat frame is at a 5° back angle relative to the ground.

4. Position the two (2) tilt locking collars against the bearing housing.

NOTE: Before tightening, ensure that the two (2) tilt locking collars are at the same position on the tilt slide.

5. Securely tighten the four (4) socket screws of the tilt locking collars.

ADJUSTING LOWER TILT LOCKING COLLAR (FIGURE 4)

NOTE: This procedure limits the amount of tilt the wheelchair may have. If adjusting the angle the wheelchair returns to, refer to ADJUSTING UPPER TILT LOCKING COLLAR in this procedure of the manual.

1. Loosen the two (2) socket screws that secure the tilt locking collar to the tilt slide.
2. Repeat STEP 1 for opposite side of wheelchair.

NOTE: To determine tilt angle relative to the seat frame, place a magnetic protractor (available at any hardware store) on the back and adjust the back until the magnetic protractor reads desired angle of tilt.

3. Tilt the wheelchair to the desired angle of tilt.
4. Position the two (2) tilt locking collars against the bearing housing.

NOTE: Before tightening, ensure that the two (2) tilt locking collars are at the same position on the tilt slide.

5. Securely tighten the four (4) socket screws of the tilt locking collars.

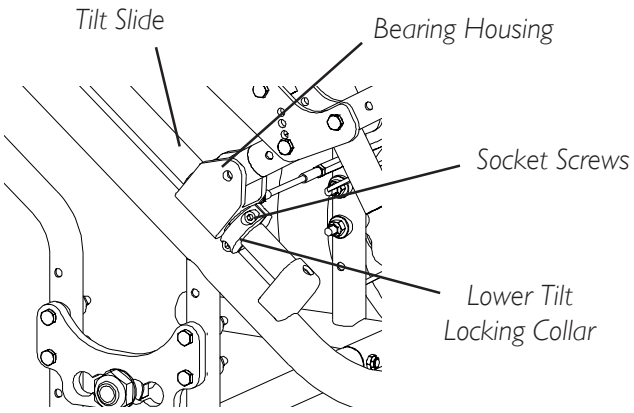


FIGURE 4 - ADJUSTING LOWER TILT LOCKING COLLAR

This Procedure Includes the Following:
Installing/Removing Rear Wheels
Adjusting the Quick-Release Axle
Seat-to-Floor Height Adjustment
Adjusting Forks

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

INSTALLING/REMOVING REAR WHEELS

QUICK-RELEASE (FIGURE 1)

NOTE: To remove rear wheels, reverse this procedure.

1. Push in the detent pin of the quick-release axle and insert the quick-release axle through the center of the rear wheel.
2. Push in the tip of the quick-release axle again and insert the axle (with wheel) into the axle mounting plate on the side of the wheelchair frame until the assembly locks in place.

WARNING

Make sure detent pin and locking pins of the quick-release axles are fully released BEFORE operating the wheelchair.

The locking pins MUST be protruding past the inside of the axle mounting plate for a positive lock.

Keep locking pins clean.

3. If the locking pins of the quick-release axles are not protruding past the inside of the axle mounting plate or there is too much movement of the rear wheel assembly in a back and forth position, refer to ADJUSTING THE QUICK-RELEASE AXLE in this procedure of the manual.
4. Repeat STEPS 1-3 for other rear wheel assembly.
5. Adjust the wheel locks. Refer to WHEEL LOCK ADJUSTMENT in PROCEDURE 9 of this manual.

NOTE: Only 12-inch rear wheel is shown. All other wheels will install/remove in the same manner.

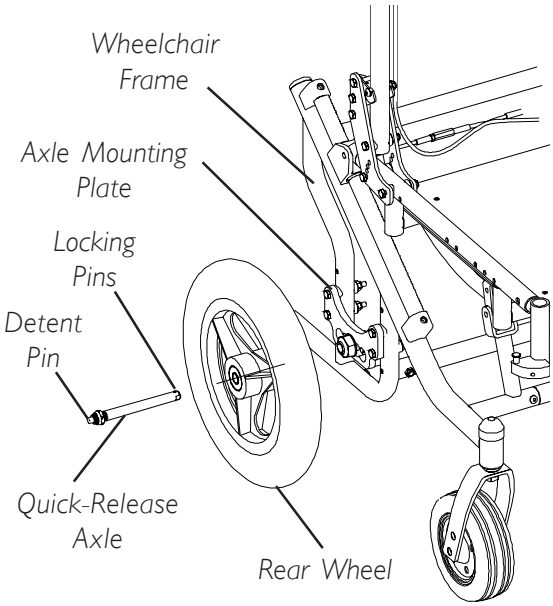


FIGURE 1 - INSTALLING/ REMOVING REAR WHEELS - QUICK-RELEASE

PERMANENT AXLE (FIGURE 2)

NOTE: To remove rear wheels, reverse this procedure.

1. Remove the permanent axles from the packaged container.
2. Install permanent axle through the rear wheel and axle plate.
3. Securely tighten the wheel to the wheelchair frame with locknut.

NOTE: Only 12-inch rear wheel is shown. All other wheels will install/remove in the same manner.

4. Repeat STEPS 2-3 for other rear wheel assembly.
5. Adjust the wheel locks. Refer to WHEEL LOCK ADJUSTMENT in PROCEDURE 9 of this manual.

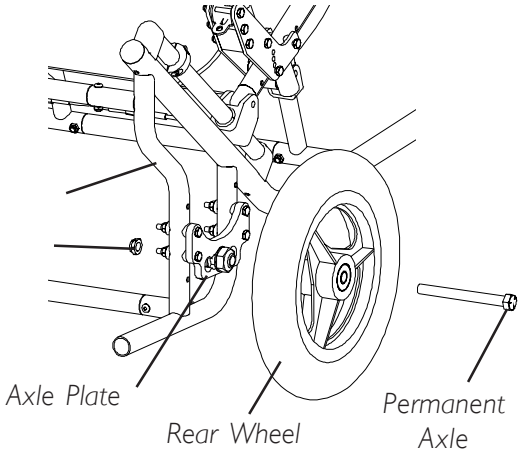


FIGURE 2 - INSTALLING/ REMOVING REAR WHEELS - PERMANENT AXLE

ADJUSTING THE QUICK-RELEASE AXLE (FIGURE 3)

1. Remove rear wheel and quick-release axle from the wheelchair. Refer to INSTALLING/REMOVING REAR WHEELS in this procedure of the manual.
2. Depress detent pin in the quick-release axle and slide axle through the wheel hub.
3. Increase or decrease end play in the quick release axle by adjusting the locknut on the end of the quick-release axle.
4. Reinstall rear wheel onto the wheelchair. Refer to INSTALLING/REMOVING REAR WHEELS in this procedure of the manual.
5. Release detent pin ensuring that the locking pins are fully released.
6. Repeat STEPS 3-5 until the quick-release axle locks properly.
7. Repeat STEPS 1-6 for opposite side, if necessary.

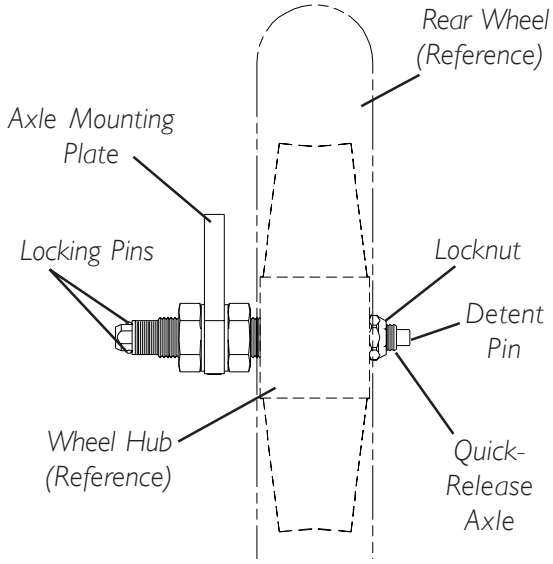


FIGURE 3 - ADJUSTING THE QUICK-RELEASE AXLE

SEAT-TO-FLOOR HEIGHT ADJUSTMENT

WARNING

Repositioning the axle plates (seat-to-floor height) MUST be performed by a qualified technician.

ADJUSTING FORKS (FIGURE 4)

1. Remove the dust cover from the caster headtube.
2. To properly tighten caster journal system and guard against flutter, perform the following check:
   A. Tip back the wheelchair to floor.
   B. Pivot both forks and casters to top of their arc simultaneously.
   C. Let casters drop to bottom of arc (wheels should swing once to one-side, then immediately rest in a straight downward position).
   D. Adjust locknuts according to freedom of caster swing.
3. Test wheelchair for maneuverability.
4. Readjust locknuts if necessary, and repeat STEPS 1-3 until correct.
5. Snap dust cover into the caster headtube.
6. Repeat STEPS 1-5 for opposite side, if necessary.

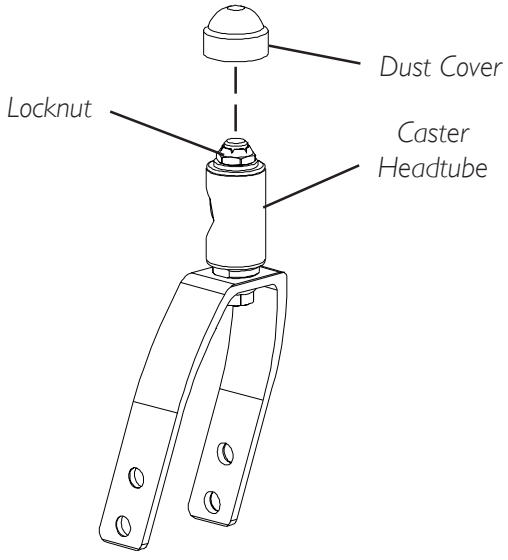


FIGURE 4 - ADJUSTING FORKS

This Procedure Includes the Following:
Wheel Lock Adjustment
Using the Wheel Locks
Installing/Adjusting Anti-Tippers

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

WHEEL LOCK ADJUSTMENT (FIGURE 1)

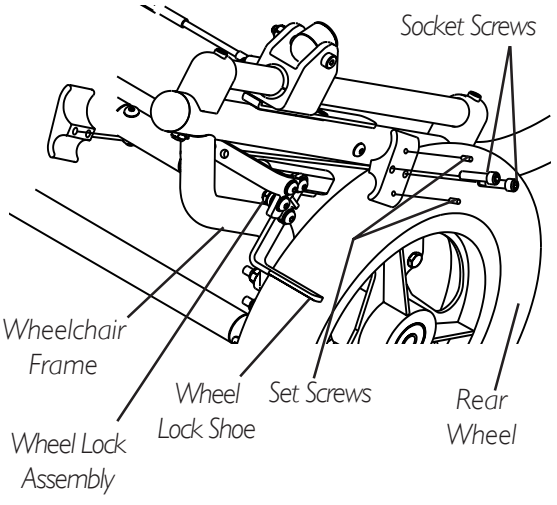
NOTE: When changing the position of the rear wheels, the wheel locks MUST be repositioned.

NOTE: Before adjusting or replacing the wheel lock assemblies, ensure that the tires are inflated to the recommended p.s.i on the side wall of the tire.

NOTE: The foot activated wheel locks and the front wheel locks adjust in the same way.

1. Loosen, but do not remove the two (2) socket screws and set screws that secure the wheel lock assembly to the wheelchair frame.
2. Measure the distance between the **WHEEL LOCK SHOE** and the **REAR WHEEL**.
3. Slide the wheel lock along the wheelchair frame until the measurement is between 5/32 and 5/16-inches.
4. Securely tighten the two (2) socket screws and set screws.
5. Repeat STEPS 1-4 for the opposite wheel lock.
6. Engage the wheel locks and push against the wheelchair to determine if the wheel locks engage the rear wheels enough to hold the wheelchair.
7. Repeat STEPS 1-6 until the wheel locks engage the rear wheels enough to hold the wheelchair.

FOOT ACTIVATED WHEEL LOCK (12-INCH WHEELS ONLY)



FRONT WHEEL LOCKS (20-22-INCH WHEELS ONLY)

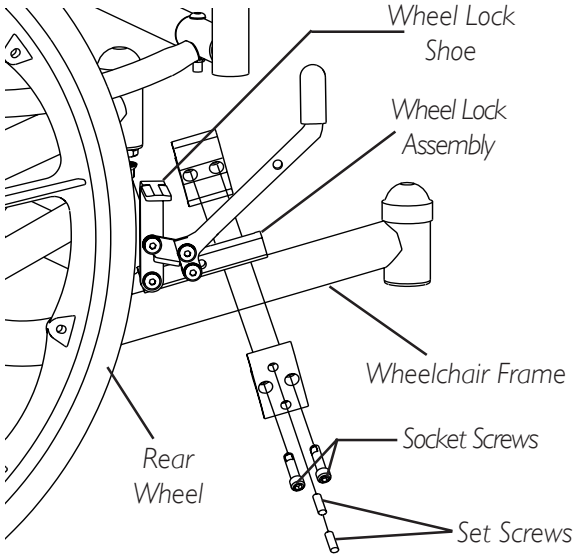


FIGURE 1 - WHEEL LOCK ADJUSTMENT

USING THE WHEEL LOCKS

FOOT ACTIVATED WHEEL LOCKS - 12-INCH WHEELS ONLY (FIGURE 2)

1. To engage, push DOWN on crossbar lever of wheel lock assembly.
2. To disengage, lift UP on crossbar lever.

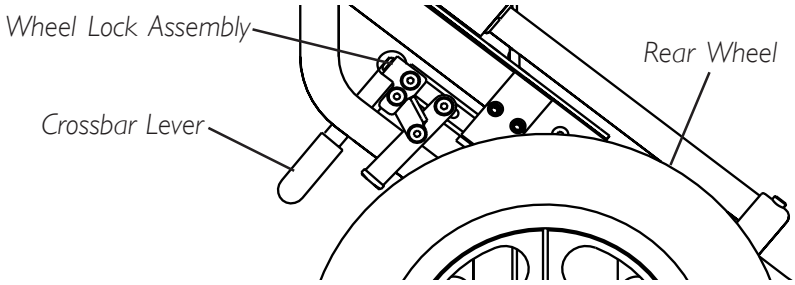


FIGURE 2 - FOOT ACTIVATED WHEEL LOCKS - 12-INCH WHEELS ONLY

FRONT WHEEL LOCKS - 20 OR 22-INCH WHEELS ONLY (FIGURE 3)

1. Push the wheel lock handle forward to engage the wheel locks.
2. Reverse STEP 1 to disengage the wheel locks.

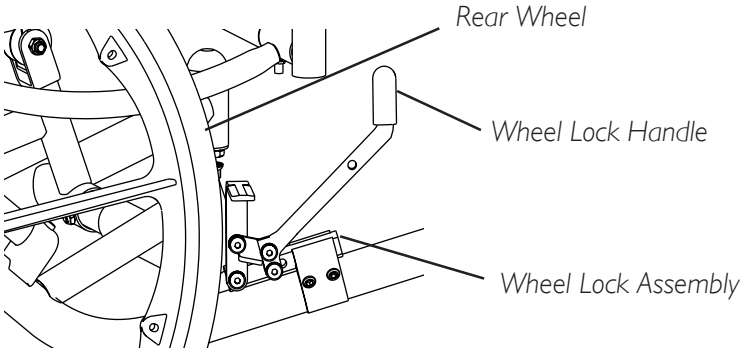


FIGURE 3 - FRONT WHEEL LOCKS - 20 OR 22 INCH WHEELS ONLY

INSTALLING/ADJUSTING ANTI-TIPPERS (FIGURE 4)

NOTE: A 1-1/2 to 2-1/4-inch clearance between the bottom of the anti-tipper wheels and the floor MUST be maintained at all times.

INSTALLING

1. Remove the anti-tippers from the accessory carton.

WARNING

Anti-tippers MUST be fully engaged and spring buttons fully protruding out of adjustment holes.

2. Press the release buttons IN and install the anti-tippers with the wheels facing DOWN until the locking buttons lock in place as shown in FIGURE 3.

NOTE: Except for low seat-to-floor heights, ALL anti-tippers will install with the wheels facing DOWN.

3. Adjust the anti-tippers. Refer to ADJUSTING ANTI-TIPPERS in this procedure of the manual.

ADJUSTING

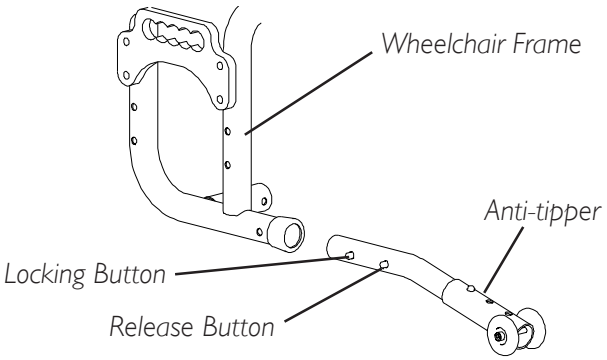
1. Depress the release button on the wheeled portion of the anti-tipper and slide it up/down to achieve 1-1/2 to 2-1/4-inch clearance.

WARNING

Anti-tippers MUST be fully engaged and release buttons fully protruding out of same respective adjustment holes BEFORE use. This will avoid a 3-Wheeling situation.

2. Ensure that the release buttons are fully engaged in the adjustment holes and 1-1/2 to 2-1/4-inch clearance is maintained.
3. If a 1-1/2 to 2-1/4-inch clearance cannot be obtained, turn the anti-tipper with the wheels facing UP as shown in FIGURE 3.
4. Repeat STEPS 1-3 for opposite side.

ANTI-TIPPER FACING DOWN



ANTI-TIPPER FACING UP

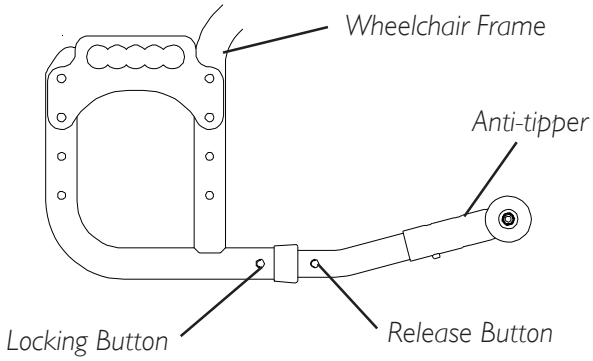


FIGURE 4 - INSTALLING/ADJUSTING ANTI-TIPPERS

This Procedure Includes the Following:
Recliner Operation
Replacing Back/Headrest Upholstery
Adjusting The Recliner Cables
Replacing The Recliner Cable
Replacing The Gas Cylinders
Adjusting The Gas Cylinders

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

The back height, seat depth, back angle, seating system, tilt angle, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the eleven (11) may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

CAUTION

DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

RECLINER OPERATION (FIGURE 1)

WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner option if only one (1) of the gas cylinders is operational or adjusted properly.

ALWAYS make sure that the wheelchair is stable in the FULL RECLINED (back at 180°) position AND the FULL UPRIGHT (back at 90°) position BEFORE using the recliner option.

Make sure the patient is properly positioned in the wheelchair before reclining or inclining (reverse recline) to maintain maximum stability and safety.

ALWAYS engage both wheel locks while reclining or inclining (reverse recline) the wheelchair.

When returning the occupant of the wheelchair to the full upright position, more body strength will be required for approximately the last twenty (20) degrees of incline (reverse recline). Make sure to use proper body mechanics (use your legs) or seek assistance to avoid injury.

Before using the recliner option, make sure the anti-tipper wheel assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor).

Before using ANY recline position of this wheelchair, make sure the rear wheels are in the MOST REARWARD position to maintain the stability of the wheelchair. DO NOT change the handling/maneuverability of the wheelchair by moving the rear wheels to ANY of the forward positions. Moving the rear wheels to ANY of the forward positions WILL change the center of gravity of the wheelchair, making the wheelchair less stable.

WARNING (CONTINUED)

ALWAYS return the back to the upright position before lifting the wheelchair.

Make sure occupant's hands and body are clear of all pinch points before reclining back. Pinch points exist between spreader bar and gas cylinders. Use caution, otherwise injury may occur.

1. Make sure the wheelchair is on a level surface.
2. Engage the wheel locks.
3. Inform the occupant of the wheelchair that the wheelchair is about to be reclined.
4. Make sure occupant's hands and body are clear of all pinch points.
5. Stand behind the wheelchair and grasp the adjustable angle stroller handle firmly.
6. Pull up on the trigger release levers to release the gas cylinders.
7. SLOWLY, squeeze the trigger release levers and perform one (1) of the following:
   A. **RECLINING -** Allow the back to recline to the desired angle.
   B. **RETURNING TO UPRIGHT POSITION -** Pull up and push the stroller handle towards the front of the wheelchair until the back is in the upright position.
8. When the back reaches desired angle, slowly release the handles of the recliner cable assemblies.
9. Disengage the wheel locks.

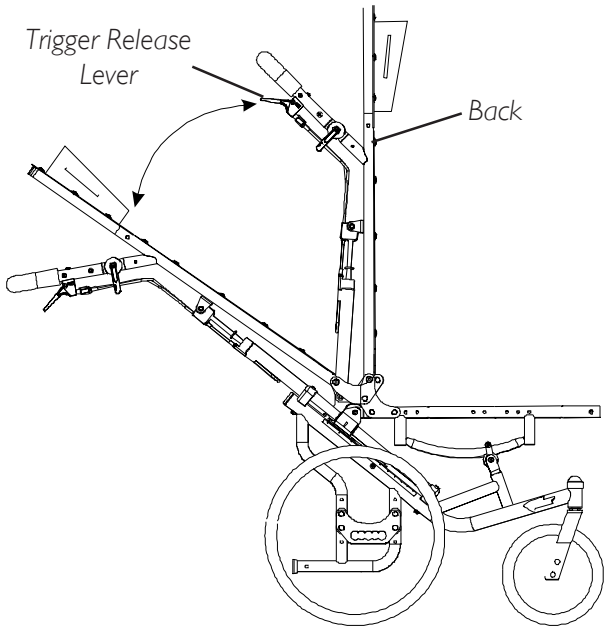


FIGURE 1 - RECLINER OPERATION

REPLACING BACK/HEADREST UPHOLSTERY (FIGURE 2)

BACK UPHOLSTERY

1. Remove the ten (10) phillips screws and washers that secure the back upholstery to the back canes.
2. Remove existing back upholstery from back canes.
3. Install new back upholstery onto the back canes.
4. Install the ten (10) phillips screws and washers that secure the back upholstery to the back canes.

HEADREST UPHOLSTERY

1. Remove the six (6) phillips screws and washers that secure the headrest upholstery to the headrest extensions.
2. Remove the existing headrest upholstery from the headrest extensions.
3. Install the new headrest upholstery onto the headrest extensions.
4. Install the six (6) phillips screws and washers that secure the headrest upholstery to the headrest extensions.

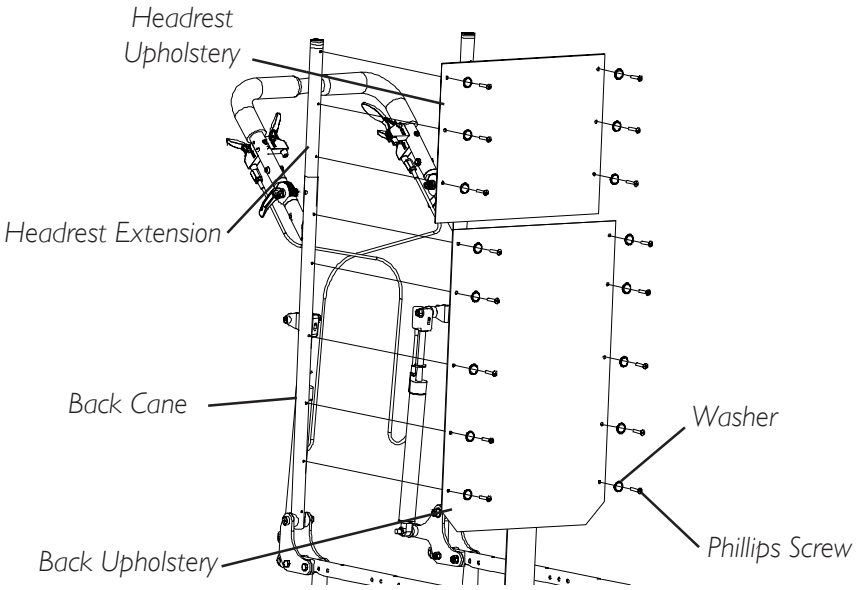


FIGURE 2 - REPLACING BACK/HEADREST UPHOLSTERY

ADJUSTING THE RECLINER CABLES

NOTE: Refer to ADJUSTING THE GAS CYLINDERS in this section of the manual.

REPLACING THE RECLINER CABLES (FIGURE 3)

NOTE: For ease of assembly, replace one (1) recliner cable at a time.

REMOVING EXISTING RECLINER CABLES

1. Cut the tie wraps that secure the recliner cable to the back cane.
2. Remove the mounting screw and the locknut that secures the recline trigger release lever to the back cane.

NOTE: Save the mounting screw and locknut for reuse when installing the NEW recliner cables.

3. Remove the recline trigger release lever from the back cane.
4. Loosen the cable locking nut that secures the recliner cable to the recline trigger release lever (DETAIL "A").
5. Unscrew the cable locking collar that secures the recliner cable to the recline trigger release lever (DETAIL "A").
6. Remove the end of the recliner cable from the slot in the recline trigger release lever (DETAIL "A").
7. Unscrew the fitting end of the recliner cable from the recline trigger release lever (DETAIL "A").
8. Unscrew the cable locking nut that secures the recliner cable to the actuator housing (DETAIL "B").
9. Remove the end of the recliner cable from the actuator.
10. Remove the recliner cable from the wheelchair.

INSTALLING NEW RECLINER CABLES

1. Screw the recliner cable into the recline trigger release lever until the fitting end of the cable is flush with the inside of the handle (DETAIL “A”).
2. Install the end of the recliner cable into the slot in the recline trigger release lever (DETAIL “A”).
3. Screw the cable locking collar onto the trigger release lever until the collar bottoms out on the trigger release lever (DETAIL “A”).
4. While holding the cable locking collar and locking nut, tighten the cable locking nut against the cable locking collar (DETAIL “A”).

CAUTION

Ensure that the recline trigger release lever operating the RIGHT gas cylinder secures to the LEFT side of the adjustable angle stroller handle and that the recline trigger release lever operating the LEFT gas cylinder secures to the RIGHT side of the adjustable angle stroller handle, allowing the cables to form an “X” pattern (DETAIL “C”). Otherwise, damage to the cables may occur.

5. While standing behind the wheelchair, secure the recline trigger release lever operating the RIGHT gas cylinder to the LEFT side of the adjustable angle stroller handle with the EXISTING mounting screw and locknut (DETAIL “C”). Securely tighten.

CAUTION

DO NOT over tighten the new cable into the actuator housing. Damage to the actuator housing can occur.

6. Screw the end of the NEW recliner cable into the actuator housing until the cable is tightened securely (DETAIL “B”).

7. Install the end of the recliner cable onto the actuator (DETAIL "B").

NOTE: Make sure the recliner cable is positioned in the slot in the actuator.

8. Secure the recline cables to the back canes using NEW tie wraps (DETAIL "C").
9. Repeat REMOVING EXISTING RECLINER CABLES and INSTALLING NEW RECLINER CABLES for the opposite recliner cable, if necessary.
10. Test the operation of the gas cylinders. Refer to ADJUSTING THE GAS CYLINDERS in this section of the manual.

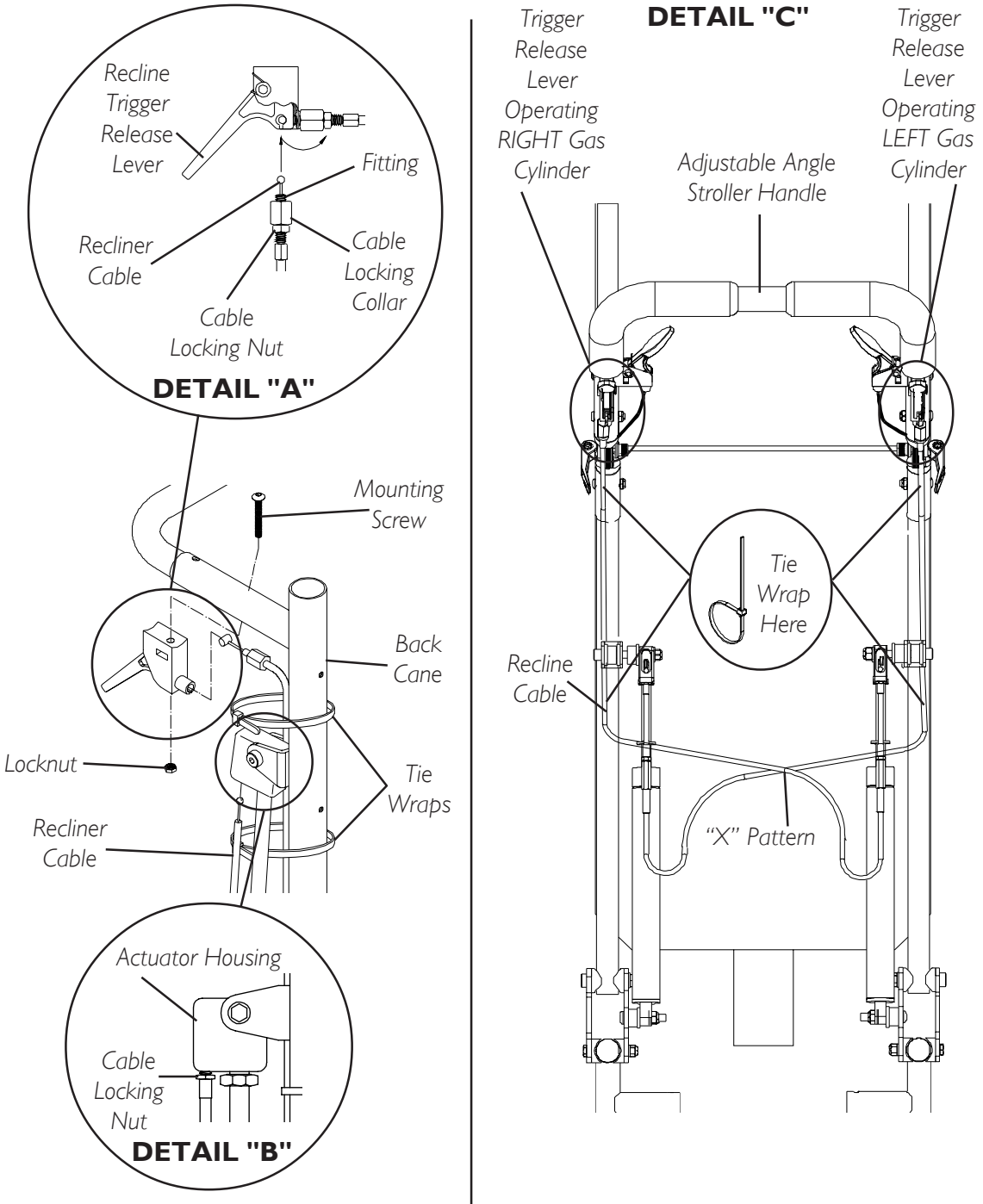


FIGURE 3 - REPLACING THE RECLINER CABLES

REPLACING THE GAS CYLINDERS (FIGURE 4)

WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner if only one (1) of the gas cylinders is operational or adjusted properly.

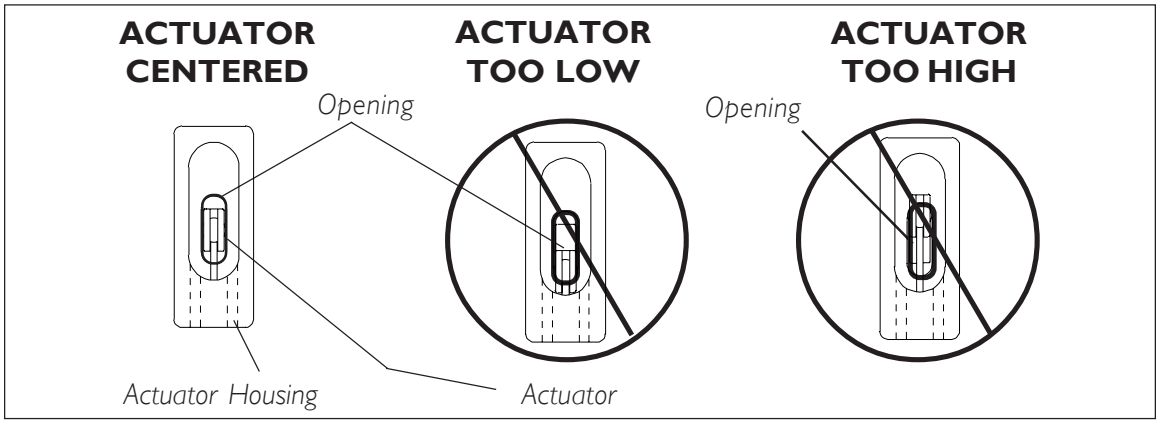
1. Loosen the jam nut on the rod of the EXISTING gas cylinder that secures the gas cylinder to the actuator housing.
2. Remove the button head cap screw, spacer, nylon washer, washer and locknut that secure the bottom of the EXISTING gas cylinder to the recliner brackets.
3. Unscrew the EXISTING gas cylinder from the actuator housing and remove the EXISTING gas cylinder from the wheelchair.

NOTE: Save the button head cap screw, spacer, nylon washer, washer and locknut for reuse when installing the NEW gas cylinder.

4. Finger tighten jam nut on the NEW gas cylinder until it bottoms out on the cylinder rod.

WARNING

Screw the rod of the gas cylinder into the actuator housing ONLY until the actuator is centered in the opening of the actuator housing.



Screwing the rod of the gas cylinder too far past center of the opening in the actuator housing will activate the gas cylinders providing NO support for the back. Possible injury to the user and/or attendant could result.

5. Screw the cylinder rod of the NEW gas cylinder into the actuator housing only until the actuator is centered in the actuator housing. Refer to the above WARNING.
6. Tighten the jam nut on the rod of the NEW gas cylinder that secures the gas cylinder to the actuator housing.

NOTE: The gas cylinders are controlled by the trigger release levers mounted on the opposite sides of the gas cylinders. The RIGHT trigger release lever controls the LEFT gas cylinder, and the LEFT trigger release lever controls the RIGHT gas cylinder.

7. Squeeze the trigger release lever that controls the EXISTING gas cylinder (the gas cylinder that has NOT been removed).
8. While squeezing the trigger, raise OR lower the recliner back until the mounting holes of the NEW gas cylinder align with the mounting holes in the bracket of the back cane.
9. Reinstall the EXISTING button head cap screw through the EXISTING recliner brackets, spacer, gas cylinder, nylon washer, mounting bracket and washer and tighten securely with the EXISTING locknut.
10. If necessary, repeat STEPS 1-9 for the opposite gas cylinder.
11. Adjust the NEW gas cylinder(s). Refer to ADJUSTING THE GAS CYLINDERS in this section of the manual.

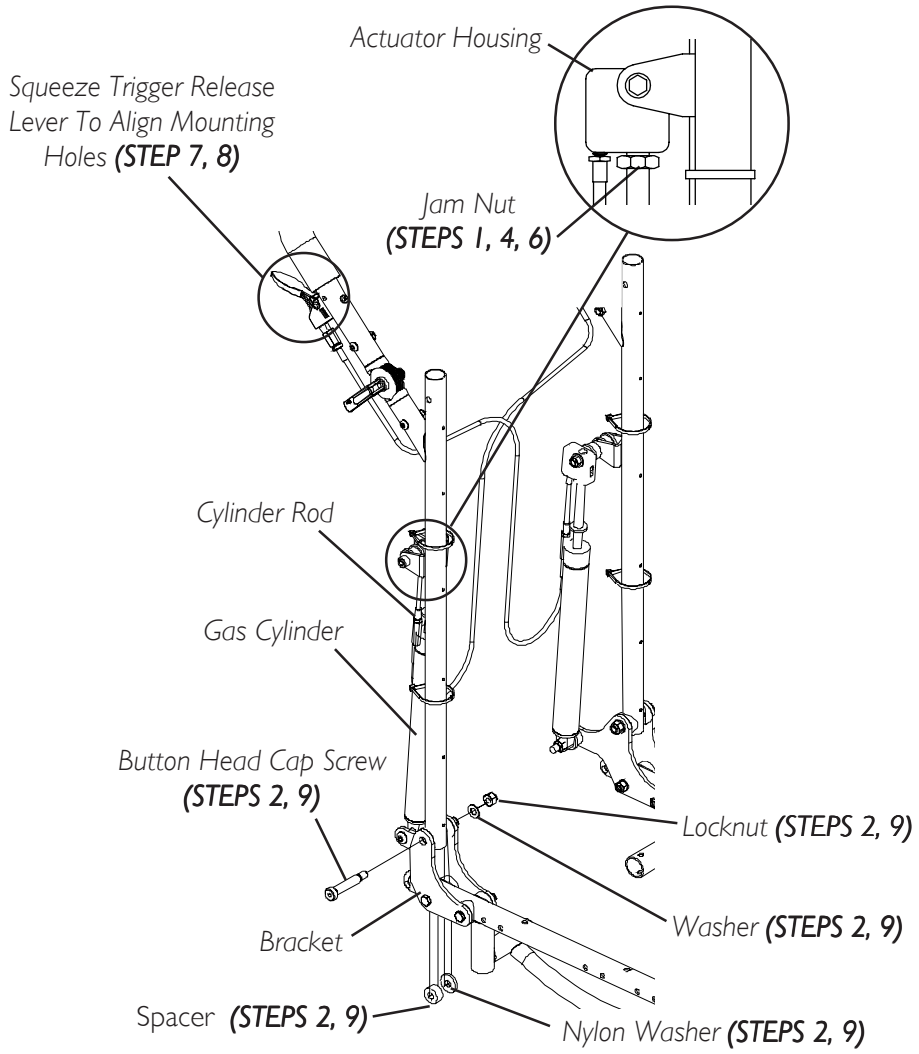


FIGURE 4 - REPLACING THE GAS CYLINDERS

ADJUSTING THE GAS CYLINDERS (FIGURE 5)

WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner if only one (1) of the gas cylinders is operational or adjusted properly.

DETERMINING NECESSARY ADJUSTMENTS

NOTE: The gas cylinders are controlled by the trigger release levers mounted on the opposite sides of the gas cylinders. The RIGHT trigger release lever controls the LEFT gas cylinder, and the LEFT trigger release lever controls the RIGHT gas cylinder.

Refer to the following chart and DETAIL "B" of FIGURE 5 to determine the necessary adjustments:

Action	NECESSARY ADJUSTMENTS
Back releases WITHOUT squeezing EITHER trigger release lever. (Actuator too LOW.)	Adjust the LEFT AND RIGHT gas cylinders
Back DOES NOT release while squeezing BOTH trigger release levers. (Actuator too HIGH.)	Adjust the LEFT AND RIGHT gas cylinders.
Back releases while squeezing the LEFT trigger release lever ONLY. (Actuator too LOW.)	Adjust the LEFT gas cylinders ONLY.
Back releases while squeezing the RIGHT trigger release lever ONLY. (Actuator too LOW.)	Adjust the RIGHT gas cylinders ONLY.

PERFORMING ADJUSTMENTS

WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner if only one (1) of the gas cylinders is operational or adjusted properly.

1. To adjust the LEFT gas cylinder:
   Loosen the cable locking nut that secures the cable adjusting nut in place.
2. Turn the cable adjusting nut one (1) of two (2) ways:

WARNING

DO NOT over tighten the adjusting nut on the recliner cable. Overtightening the adjusting nut on the recliner cable WILL actuate the gas cylinder, possibly causing injury.

A. **CLOCKWISE** - Turning the cable adjusting nut clockwise will **tighten** the recliner cable. DO NOT overtighten the cable adjusting nut. Turn the cable adjusting nut clockwise until actuator looks like DETAIL "B".

B. **COUNTERCLOCKWISE** - Turning the cable adjusting nut counterclockwise will **loosen** the recliner cable.

NOTE: If the recliner cable is too loose, the gas cylinders will not work.

C. While holding the cable adjusting nut in place, tighten the cable locking nut against the cable adjusting nut.

D. Repeat STEP 1.

E. Repeat STEP 2 until the LEFT side of the back DOES NOT recline.

3. Squeeze the trigger release lever of the RIGHT recliner cable assembly and try to recline the back. The back should not recline.

4. To adjust the RIGHT gas cylinder:
Repeat STEPS 1-3 for the LEFT handle of the recliner cable.

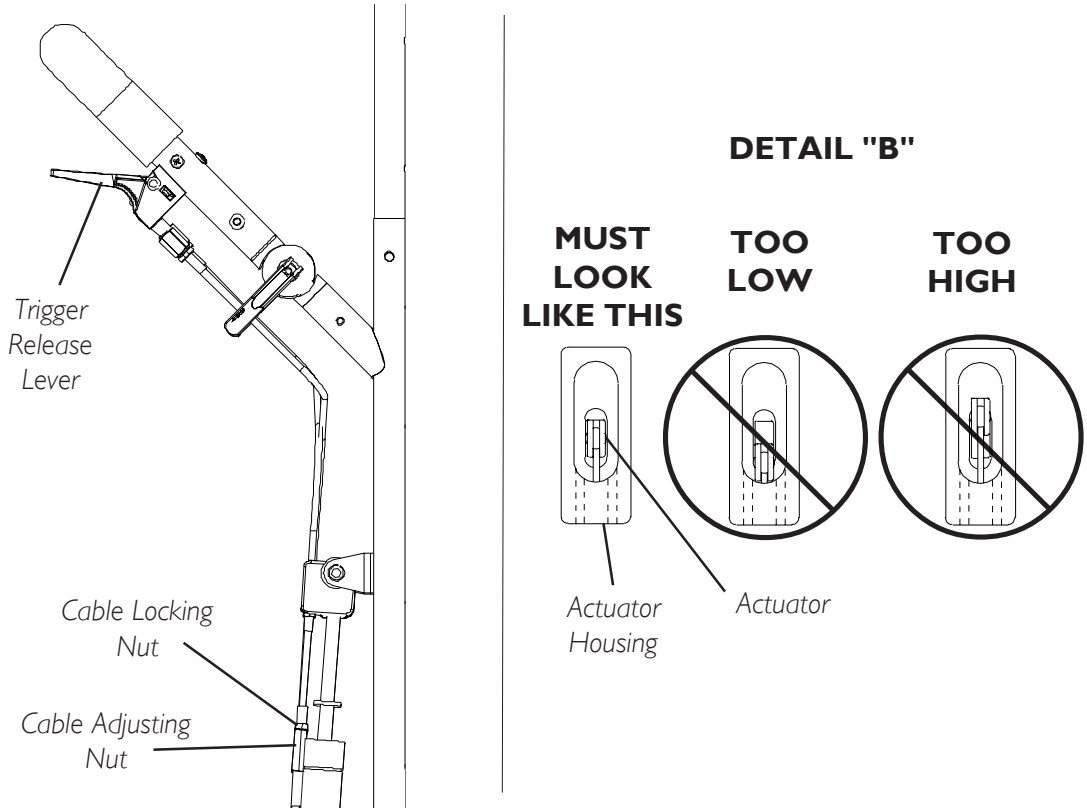


FIGURE 5 - PERFORMING ADJUSTMENTS

This Procedure Includes the Following:
Installing The Contracture Footplate Assembly
Contracture Assembly Angle Adjustment
Using The Optional Quick-Release Pin
Angle Adjustment of the Contracture Footplate
Contracture Footplate Depth Adjustment
Contracture Footplate Height Adjustment
Replacing The Contracture Footplate heel Loop

INSTALLING THE CONTRACTURE FOOTPLATE ASSEMBLY

INSTALLING THE CROSSMEMBER ASSEMBLY (FIGURE 1)

NOTE: Invacare recommends that two (2) people perform this procedure.

NOTE: Take note of position and orientation of the mounting hardware for reassembly.

1. If necessary, remove the seating system from the wheelchair. Refer to the seating systems Owner's Manual supplied with the wheelchair.
2. Remove the seat pan. Refer to REMOVING/INSTALLING THE SEAT PAN in the Service Manual, part number 1085787.
3. Remove the back canes. Refer to REMOVING/INSTALLING THE BACK CANES in the Service Manual, part number 1085787.
4. Remove the allen screw, spacer and locknut that secure the link bracket to the lower seat frame as shown in DETAIL "A" of FIGURE 1.
5. Remove the shoulder screw and locknut securing the rear of the seat frame to the bearing housing as shown in DETAIL "A" of FIGURE 1.
6. Repeat STEPS 4-5 for opposite side of seat frame.
7. Lift up to remove the seat frame from the base frame.

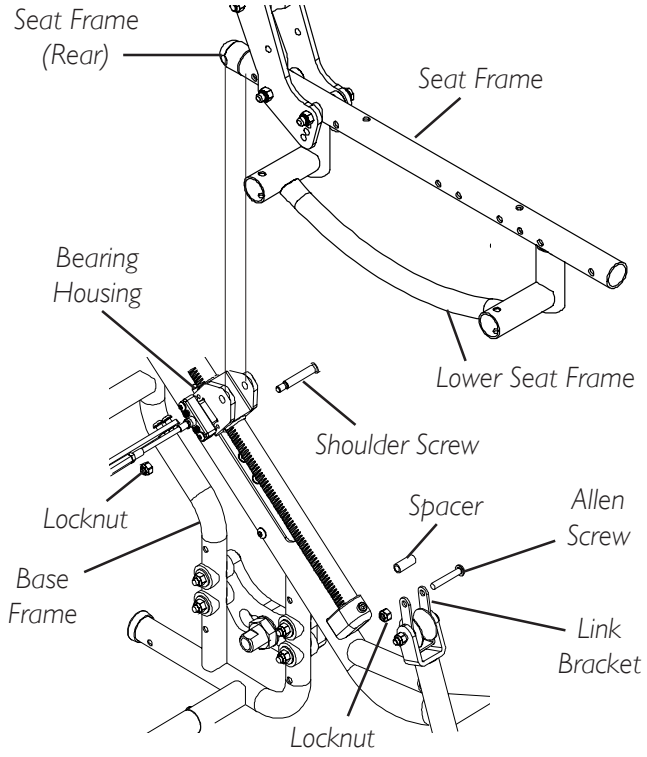
NOTE: When reassembling the seat frame, the front crossbrace will be replaced with the crossmember assembly (insert tube and outer tube) provided in this kit and will be secured with the EXISTING mounting screws.

NOTE: Right and left sides of the seat frame are determined by sitting in the wheelchair.

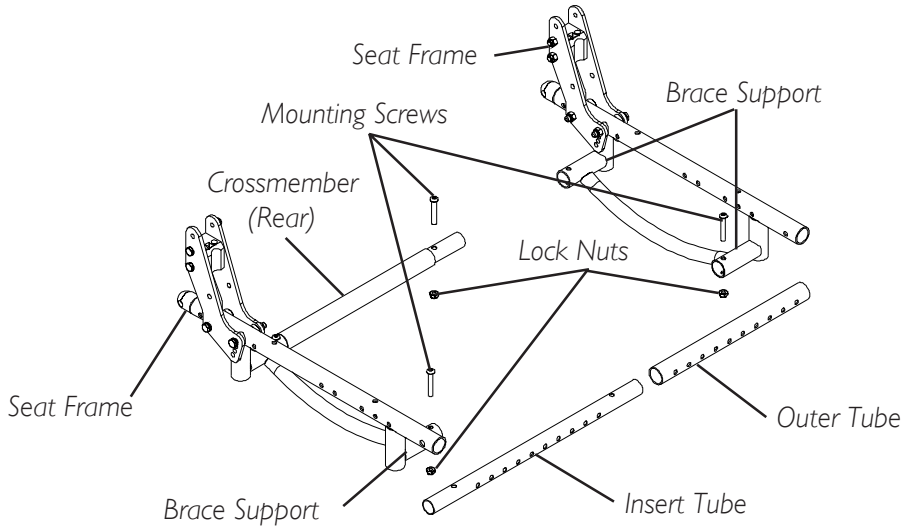
8. On the left hand side of the seat frame, remove the two (2) EXISTING mounting screws and locknuts that secure the front and rear crossmember to the brace supports of the seat frame as shown in DETAIL "B" of FIGURE 1.
9. Pull the left hand side of the seat frame away from the front and rear crossmembers.
10. Remove the EXISTING mounting screw, and locknut that secures the other end of the front crossmember to the front right hand side brace support of the seat frame as shown in DETAIL "B" of FIGURE 1.
11. Remove the front crossmember from the brace support and discard.
12. Insert one end of the insert tube into the front right hand side brace support.
13. Align mounting holes in the end of the insert tube with the brace support and secure with the EXISTING mounting screw and locknut.

14. Slide the outer tube over the insert tube as shown in DETAIL "B" of FIGURE 1.
15. Align the brace supports of the left hand side of the seat frame with the front and rear crossmembers.
16. Insert the front and rear crossmembers into the brace supports of the left hand side of the seat frame. Reinstall the two (2) EXISTING mounting screws and locknuts.

DETAIL "A"



DETAIL "B"



NOTE: Front crossmember not shown.

FIGURE 1 - INSTALLING THE CROSSMEMBER ASSEMBLY

INSTALLING THE CONTRACTURE ASSEMBLY - FORWARD MOUNT (FIGURE 2)

NOTE: The number of mounting positions on the contracture assembly may vary due to the width of the wheelchair.

1. Align the mounting holes of the outer tube with the mounting holes of the insert tube of the crossmember assembly.
2. Align the mounting holes of the contracture footplate assembly with two (2) desired mounting positions of the crossmember assembly.
3. Secure the contracture assembly to the crossmember assembly with the two (2) mounting screws, washers and locknuts provided. Securely tighten.
4. If necessary, repeat STEPS 1-4 for the other contracture assembly.

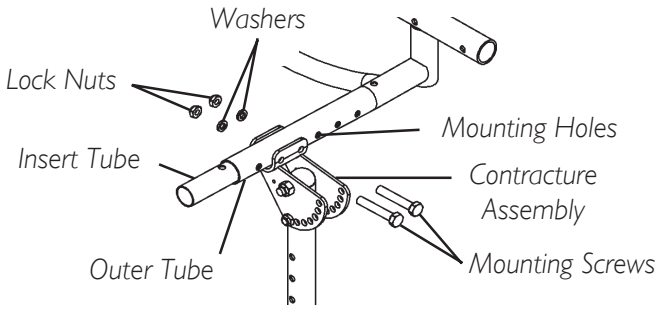


FIGURE 2 - REMOVING/INSTALLING THE CONTRACTURE ASSEMBLY - FORWARD MOUNT

INSTALLING THE CONTRACTURE ASSEMBLY - REVERSED MOUNT (FIGURE 3)

1. Remove the contracture footplate. Refer to CONTRACTURE FOOTPLATE HEIGHT ADJUSTMENT in this procedure of the manual.
2. Align the mounting holes of the contracture footplate assembly with two (2) desired mounting positions of the crossmember assembly.
3. Secure the contracture assembly to the crossmember assembly with two (2) mounting screws, washers and locknuts provided. Securely tighten.

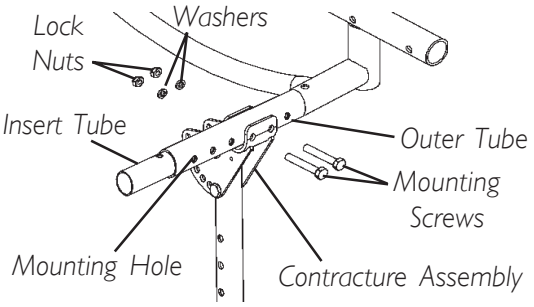


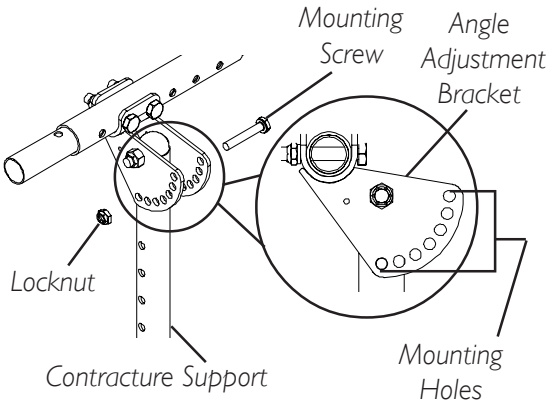
FIGURE 3 - REMOVING/ INSTALLING THE CONTRACTURE ASSEMBLY - REVERSED MOUNT

4. Reinstall the contracture footplate. Refer to CONTRACTURE FOOTPLATE HEIGHT ADJUSTMENT in this procedure of the manual.
5. If necessary, repeat STEPS 1-4 for the other contracture assembly.

CONTRACTURE ASSEMBLY ANGLE ADJUSTMENT (FIGURE 4)

1. Perform one (1) of the following:
   A. **BILATERAL CONTRACTURE -** Remove the mounting screw and locknut used to lock the angle adjustment of the contracture assembly.
   B. **CONTRACTURE PLATFORM -** Remove the two (2) hex screws and locknuts that lock the angle adjustment of the contracture assembly.
2. Lift the contracture support UP/DOWN to achieve the desired angle.
3. Perform one (1) of the following:
   A. **BILATERAL CONTRACTURE -** Align the mounting hole in the contracture support with one (1) of seven (7) mounting holes on the angle adjustment bracket.
   B. **CONTRACTURE PLATFORM -** Align the upper support mounting hole with one (1) of four (4) mounting holes in the angle adjustment plate.
4. Reinstall the mounting screw(s) and locknut(s) to lock the angle adjustment of the contracture assembly. Securely tighten.

BILATERAL CONTRACTURE



CONTRACTURE PLATFORM

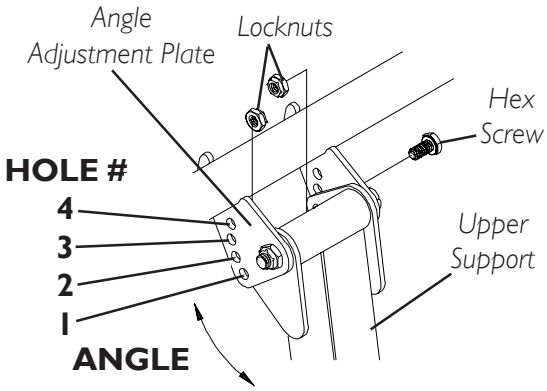


FIGURE 4- CONTRACTURE ASSEMBLY ANGLE ADJUSTMENT

USING THE OPTIONAL QUICK-RELEASE PIN (FIGURE 5)

NOTE: This procedure applies to the bilateral contracture footplate only.

NOTE: The quick-release pin replaces the mounting screw that is used to lock the angle adjustment of the contracture support.

WARNING

If not installed at time of shipment, the quick-release pin MUST be installed by a qualified technician only, using a 1/8-inch pop rivet.

1. Press the button on the quick-release pin and insert through the contracture support and the angle adjustment bracket.
2. If necessary adjust the angle of the contracture assembly. Refer to CONTRACTURE ASSEMBLY ANGLE ADJUSTMENT in this procedure of the manual.

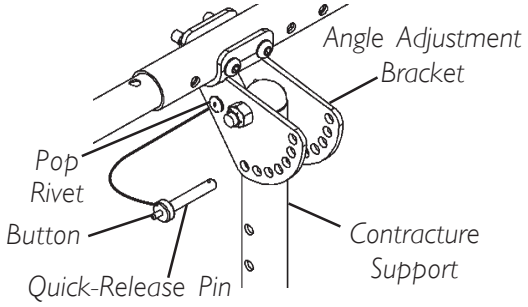
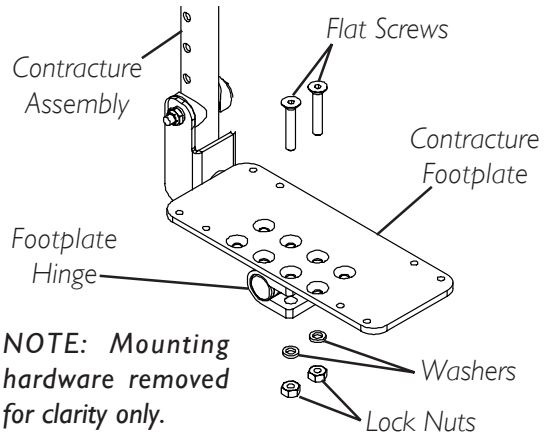


FIGURE 5 - USING THE OPTIONAL QUICK-RELEASE PIN

ANGLE ADJUSTMENT OF THE CONTRACTURE FOOTPLATE (FIGURE 6)

1. Loosen, but DO NOT, remove the two (2) flat screws, washers and locknuts that secure contracture footplate to the footplate hinge.
2. Tilt the contracture footplate UP/ DOWN to achieve desired angle.
3. Retighten the two (2) flat screws, washers and locknuts that secures the contracture foot plate to the footplate hinge.
4. If necessary, repeat STEPS 1-3 on remaining contracture footplate.



NOTE: Bilateral contracture footplate shown for clarity.

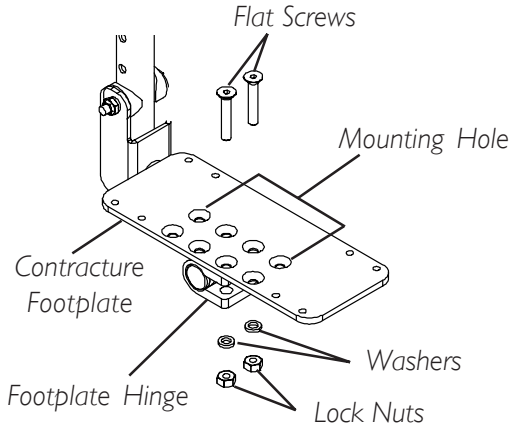
FIGURE 6 - ANGLE ADJUSTMENT OF THE CONTRACTURE FOOTPLATE

CONTRACTURE FOOTPLATE DEPTH ADJUSTMENT (FIGURE 7)

NOTE: Observe the angle of the contracture footplate for reinstallation.

1. Perform one (1) of the following:
   A. **BILATERAL CONTRACTURE -** Remove the two (2) flat screws, washers and locknuts that secure the contracture footplate to the footplate hinge.
   B. **CONTRACTURE PLATFORM -** Remove the four (4) flat screws that secure the contracture platform to the half clamps.
2. Move the contracture footplate to one (1) of four (4) mounting hole.
3. Perform one (1) of the following:
   A. **BILATERAL CONTRACTURE -** Reinstall the two (2) flat screws, washers and locknuts that secure the contracture footplate to the footplate hinge.
   B. **CONTRACTURE PLATFORM -** Reinstall the four (4) flat screws that secure the contracture platform to the half clamps. Tighten securely.

BILATERAL CONTRACTURE



CONTRACTURE PLATFORM

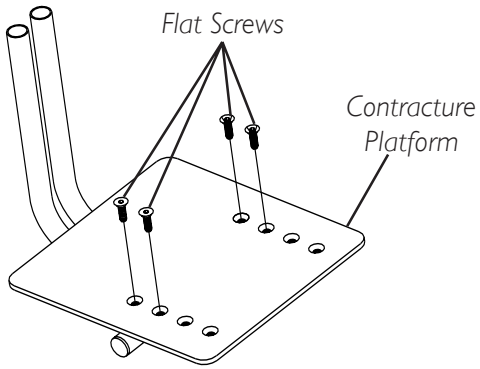


FIGURE 7 - CONTRACTURE FOOTPLATE DEPTH ADJUSTMENT

CONTRACTURE FOOTPLATE HEIGHT ADJUSTMENT (FIGURE 8)

BILATERAL CONTRACTURE

1. Remove the mounting screw, two (2) coved washers, washer and locknut that secure the footplate bracket to the contracture support.
2. Move the footplate bracket UP/DOWN to achieve desired height.
3. Align the mounting hole in the footplate bracket with one (1) of seven (7) mounting holes on the contracture support.
4. Secure the footplate bracket to the contracture support with the mounting screw, two (2) coved washers, washer and locknut. Securely tighten.
5. If necessary, repeat STEPS 1-4 on remaining contracture footplate.

CONTRACTURE PLATFORM

1. Loosen, but do not remove the two (2) hex screws and locknuts that secure the contracture platform to the upper support.
2. Slide the contracture platform to the desired height.
3. Tighten the two (2) hex screws and locknuts that secure the contracture platform to the upper support.

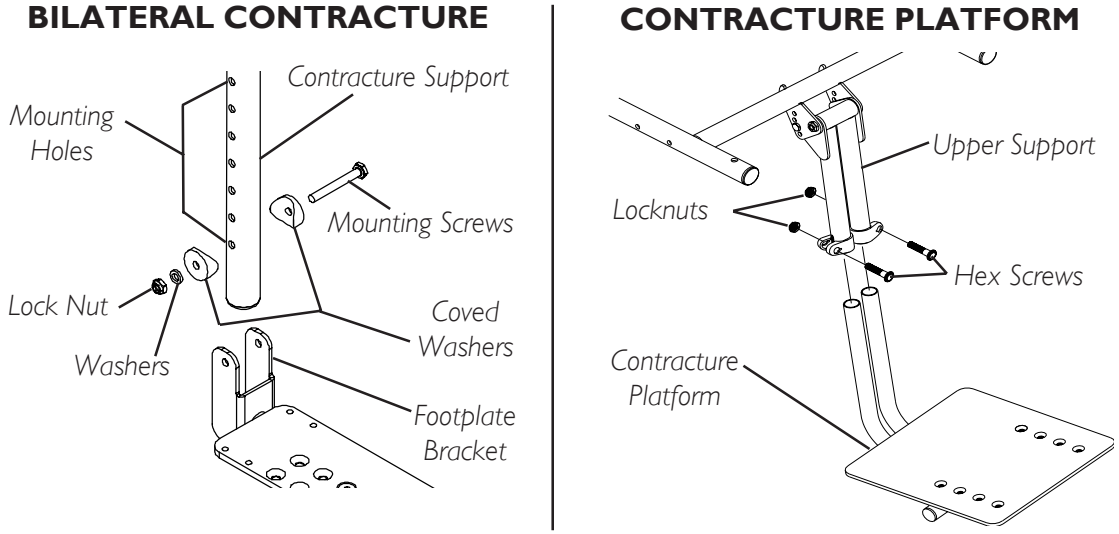


FIGURE 8 - CONTRACTURE FOOTPLATE HEIGHT ADJUSTMENT

REPLACING THE CONTRACTURE FOOTPLATE HEEL LOOP (FIGURE 9)

NOTE: This procedure applies to the bilateral contracture footplate only.

1. Tilt the contracture footplate forward to gain access to the mounting screws that secure the heel loop to the underside of the contracture footplate. Refer to ANGLE ADJUSTMENT OF THE CONTRACTURE FOOTPLATE in this procedure of the manual.
2. Remove the four (4) mounting screws and washers that secure the EXISTING heel loop to the contracture footplate.
3. Reverse STEPS 1-2 to install the NEW heel loop.

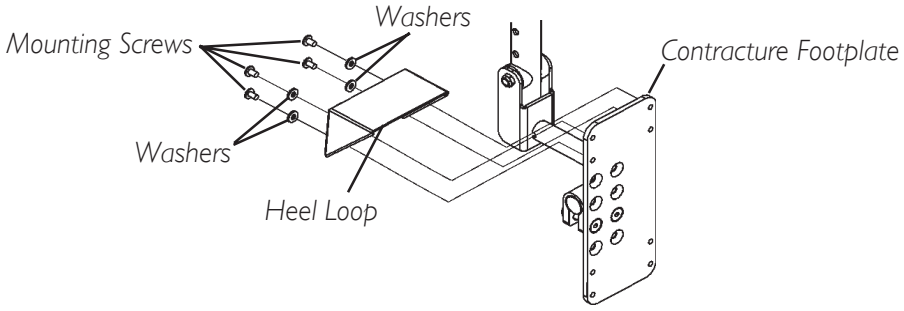


FIGURE 9 - REPLACING THE CONTRACTURE FOOTPLATE HEEL LOOP

This Procedure Includes the Following:
Compliance Information
Securing the Wheelchair to the Vehicle
Securing the Occupant

NOTE: The information in this section is for wheelchairs ordered with the transport ready option ONLY.

WARNING

Contact Invacare Corporation (800-333-6900) with any questions about using this wheelchair for seating in a motor vehicle.

When feasible, wheelchair occupants should transfer into the vehicle seat and use the OEM (Original Equipment Manufacturer) vehicle-installed restraint system.

This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy restrained by BOTH pelvic and shoulder belt(s), and that BOTH pelvic and upper torso belt(s) should be used to reduce the possibility of head and chest impacts with vehicle components.

Use ONLY Wheelchair Tie-down and Occupant Restraint Systems (WTORS) which meet the requirements of the SAE (Society of Automotive Engineers) J2249 Recommended Practice during travel in a motor vehicle.

This wheelchair has been tested for seating in a motor vehicle with the factory installed seating system ONLY.

This wheelchair MUST be in a forward facing position during travel in a motor vehicle.

This wheelchair is equipped, and has been dynamically tested to rely on WHEELCHAIR-ANCHORED pelvic belts. If desired, VEHICLE-ANCHORED pelvic belts may be used.

IT IS STRONGLY RECOMMENDED THAT BOTH PELVIC AND UPPER-TORSO BELT(S) BE USED.

To reduce the potential of injury to vehicle occupants, wheelchair-mounted accessories, including but not limited to IV poles, trays, respiratory equipment, backpacks, and other personal items should be removed and secured separately.

Postural supports, positioning devices, and/or strap(s) should NOT be relied on for occupant restraint. These items may be used IN ADDITION TO the wheelchair-anchored or vehicle-anchored belts.

Ensure quick-release pins are engaged through bearing housings and tilt slides.

DO NOT alter or substitute wheelchair frame parts, components, or seating systems.

A sudden stop and/or collision may structurally damage your wheelchair. Wheelchairs involved in such incidents should be replaced.

COMPLIANCE INFORMATION

This wheelchair conforms with the requirements of the ANSI/RESNA WC/Vol.1 - Section 19.5.3 (Frontal Impact Test).

NOTE: ANSI = American National Standards Institute
RESNA= Rehabilitation Engineering and Assistive Technology Society of North America

SPECIFICATIONS

Only wheelchairs which fit in the following size ranges should be occupied in a motor vehicle:

- 12-inches to 22-inches wide
- 15-inches to 22-inches deep

SECURING THE WHEELCHAIR TO THE VEHICLE

POSITIONING THE WHEELCHAIR IN THE VEHICLE

WARNING

This wheelchair must be in a forward facing position during travel in a motor vehicle.

Ensure quick-release pins are engaged through bearing housings and tilt slides.

The recommended clear zones for wheelchair seated occupants restrained by BOTH pelvic and upper torso belt(s) and ONLY by a pelvic belt are shown in the diagrams on the next page.

WARNINGS (CONTINUED)

Frontal Clear Zones (FCZ) need to be LARGER when upper torso belt(s) are NOT used.

The rear clear zone of 16-inches is measured from the rearmost point on an occupant's head. The frontal clear zone is measured from the frontmost point on an occupant's head.

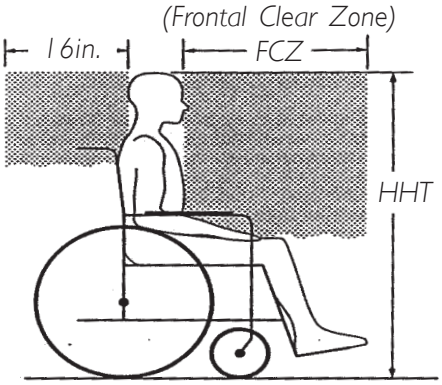
HHT is the estimated seated height from the wheelchair ground plane to the top of the wheelchair-seated occupant's head.

HHTs range from about 47-inches for a small adult female, to about 61-inches for a tall adult male.

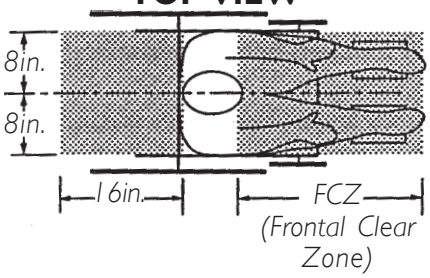
FCZ = 26-inches with pelvic and upper-torso belt(s), and 37-inches with ONLY a pelvic belt.

The frontal clear zone may not be achievable for wheelchair-seated drivers.

SIDE VIEW



TOP VIEW



SECUREMENT POINTS (FIGURE 1)

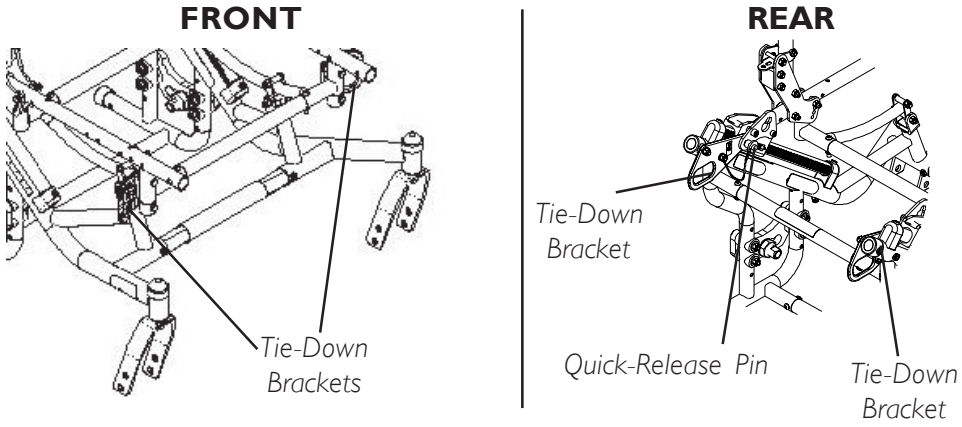


FIGURE 1 - SECUREMENT POINTS

SECURING THE WHEELCHAIR

WARNING

Ensure quick-release pins are engaged through bearing housings and tilt slides.

This wheelchair is to be used only with Wheelchair Tie-down and Occupant Restraint Systems (WTORS) that have been installed in accordance with the manufacturer's instructions and SAE J2249.

NOTE: A copy of SAE J2249 Wheelchair Tie-down and Occupant Restraint Systems (WTORS) for use in Motor Vehicles can be obtained from: SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, (877) 606-7232 or (724) 776-4970.

Attach WTORS to the tie-down brackets in accordance with the manufacturer's instructions and SAE J2249.

SECURING THE OCCUPANT

WHEELCHAIR-ANCHORED BELTS (FIGURE 2)

WARNING

The pelvic belt that is provided by Invacare has been tested for use in a motor vehicle on this wheelchair ONLY. DO NOT replace the pelvic belt with a different style pelvic belt.

The wheelchair has been provided with a pelvic belt which meets the requirements of ANSI/RESNA WC/19.

The pelvic belt provided by Invacare has been designed to accommodate use on either side of the vehicle. If necessary, follow the instructions below to reverse the orientation of the pelvic belt to accommodate the vehicle-anchored upper torso belt.

1. Install the pelvic belt pin (DETAIL "A" of FIGURE 2) into slot in the pelvic belt bracket.

NOTE: Note the position of the male end of the belt when installing the pelvic belt onto the pelvic belt brackets. The male end of the pelvic belt (DETAIL "A" of FIGURE 2) has a pin which is used to secure the vehicle-anchored upper torso belt.

2. Repeat STEP 1 for the opposite pelvic belt bracket.
3. Install the vehicle-anchored upper torso belt onto the pin on the male end of the pelvic belt.

DETAIL "A" - PELVIC BELT

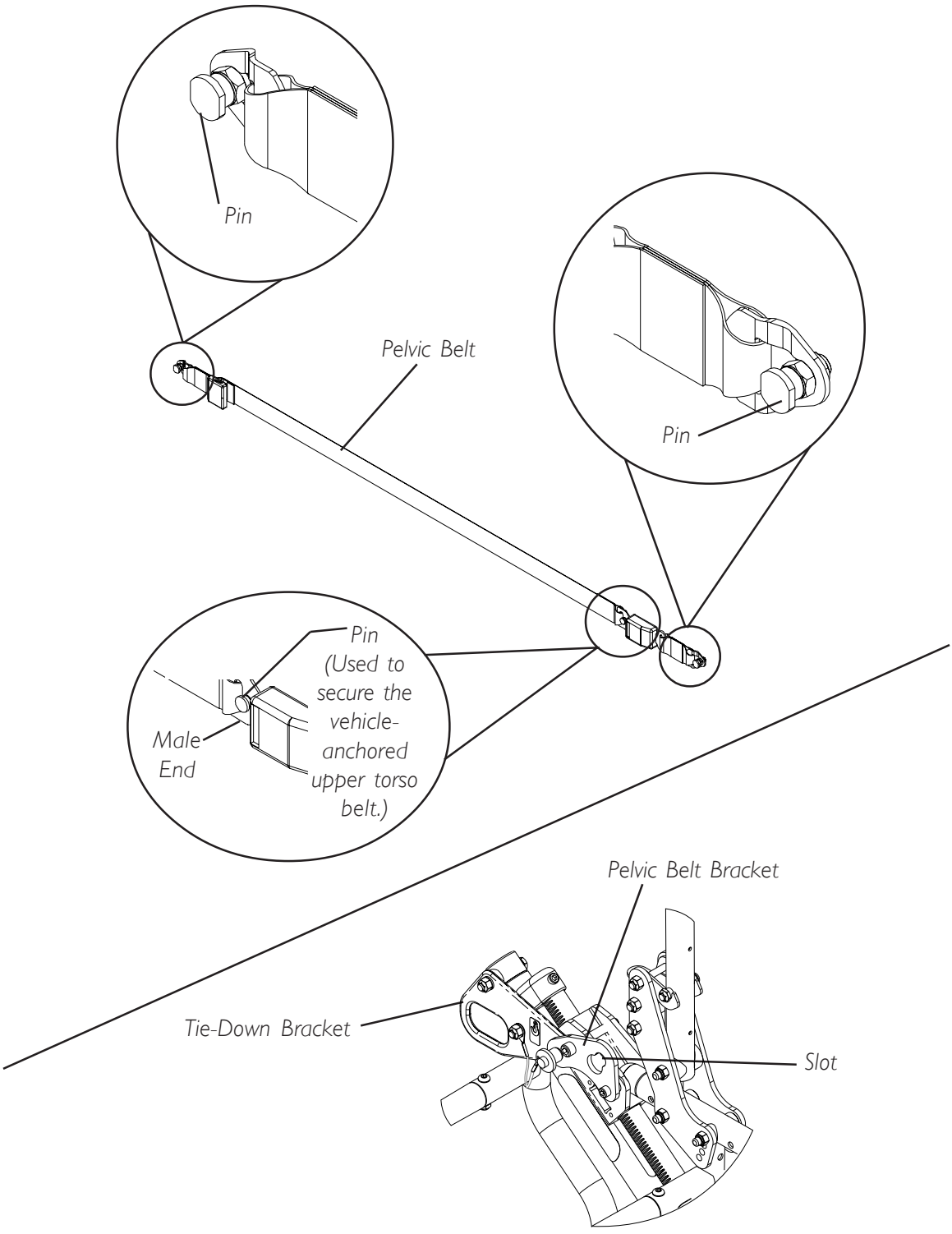


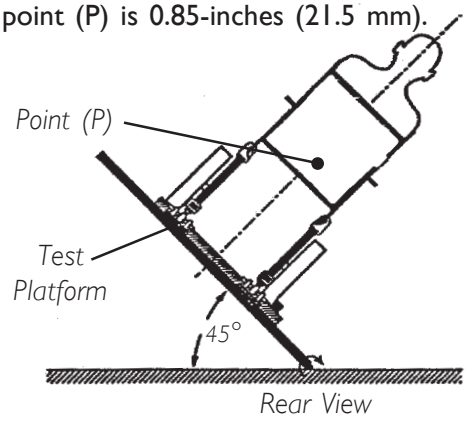
FIGURE 2- WHEELCHAIR-ANCHORED BELTS

VEHICLE-ANCHORED BELTS (FIGURE 3)

This wheelchair has an overall rating of "C" with regard to accommodating the use and fit of vehicle-anchored belts. This rating is scored as follows:

RATING	DESCRIPTION
A	Excellent
B	Good
C	Fair
D	Poor

The test for Lateral Stability Displacement for Point (P) is shown in FIGURE 3. The average test result for point (P) is 0.85-inches (21.5 mm).



NOTE: Rear view of wheelchair and human surrogate secured on test platform and tilted to 45 degrees.

FIGURE 3 - VEHICLE-ANCHORED BELTS

SEATING SYSTEM

WARNING

This wheelchair has been tested for seating in a motor vehicle with the factory installed seating system ONLY.

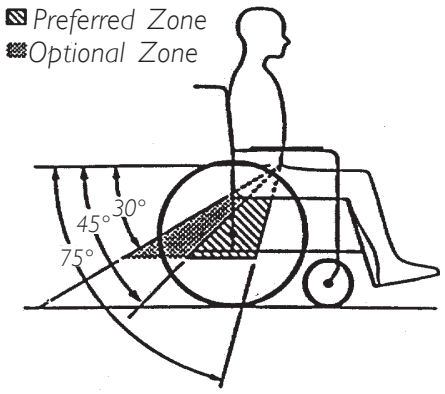
POSITIONING BELTS (FIGURE 4)

WARNING

The angle of the pelvic belt should be within the preferred zone of 45 to 75 degrees to the horizontal OR within the optional zone of 30 to 45 degrees to the horizontal.

Steeper side-view pelvic belt angles are especially important if the pelvic belt is intended to be used for postural support in addition to occupant restraint in a frontal crash. Steeper angles will reduce the tendency for a vertical gap to develop between the user and the belt due to compliance of seat cushions and belt movement, thereby reducing the tendency for the user to slip under the belt and for the belt to ride up on the soft abdomen during normal use.

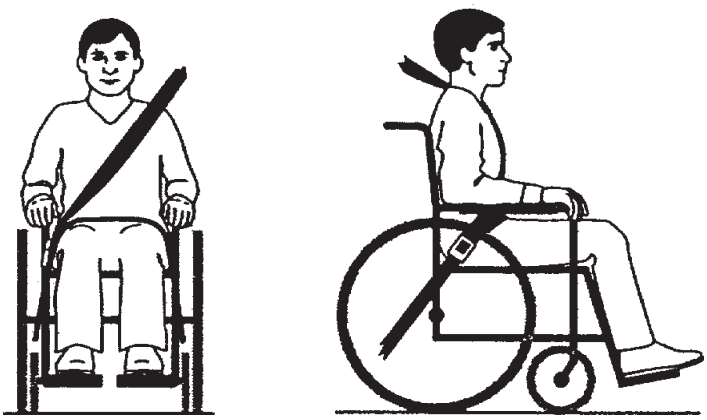
SIDE VIEW



Steeper belt angles also reduce the tendency for upper-torso belts to pull the pelvic belt onto the abdomen during frontal impact loading.

1. The pelvic belt should be worn low across the front of the pelvis.
2. Position the upper torso belt(s) over the shoulders.
3. The belt(s) should not be held away from the body by wheelchair components or parts, including but not limited to wheelchair armrests or wheels. Refer to FIGURE 4 for proper and improper positioning of the belts.
4. Ensure the belt(s) are not be twisted.
5. Adjust belts as firmly as possible, being mindful of user comfort.

DO POSITION BELTS INSIDE OF ARMRESTS, WHEELS, ETC.



DON'T POSITION BELTS OUTSIDE OF ARMRESTS, WHEELS, ETC.

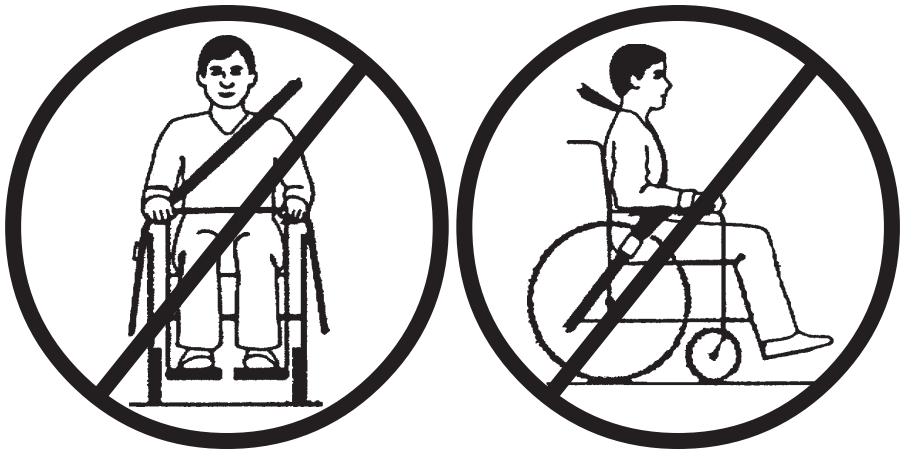


FIGURE 4 - POSITIONING BELTS

NOTES

NOTES

LIMITED WARRANTY

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser/user of our products.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

Invacare warrants its product, except for the seat cushion (which is not warranted), to be free from defects in materials and workmanship for a period of one (1) year from date of purchase. The side frames and crossmembers are warranted for the lifetime of the original purchaser/user. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address on the back cover, provide dealer's name, address, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THESE INSTRUCTIONS.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

Invacare Corporation www.invacare.com

USA
One Invacare Way
Elyria, Ohio USA
44036-2125
800-333-6900

Canada
570 Matheson Blvd E Unit 8
Mississauga, Ontario
L4Z 4G4, Canada
800-668-5324

Invacare is a registered trademark of Invacare Corporation.
Solara and Yes, you can. are trademarks of Invacare Corporation.
3-in-1 oil is a registered trademark of American Home Products Corporation.
WD-40 is a registered trademark of the WD-40 Company
Teflon is a registered trademark of E.I. Du Pont De Nemours and Company.

© 2004 Invacare Corporation
Part No. 1080556 Rev1 - 03/04